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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH JANUARY 15, 1981

Food Science & Techni
Information Service
29 MAY 1980
C.F.T.R.I., MYSOR

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Amrik Singh, Chairman, SNIPES Board and Secretary, AIU, making a point at a meeting with Mr. A. Paulen, Presid he International Amateur Athletic Federation. The Minister of State for Education is also seen in the pictu

CLASSIFIED ADVERTISEMENTS

SAURASHTRA UNIVERSITY

RAJKOT

CORRIGENDUM

Reference advertisement in Dec. 15, 1980 issue on the page No. 699 for the post of Coordinator (N.A.E.P.) qualifications will be as under:

"In the qualifications for the post of Co-ordinator, N.A.E.P., the words **"a Post-graduate degree in any faculty"** have been added after the words **"Rural Studies or Agriculture"** in line three." Last date of receipt of applications for this post is now **extended to 22-1-1981**.

REGISTRAR

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

Hari Om Ashram Trust Awards for the Year 1981

Nominations are invited for the Hari Om Ashram Trust Awards for the year 1981. Three awards of the value of Rs. 10,000. each in cash or kind or both are given every year for outstanding original research, fundamental or applied, including inventions, discoveries etc. leading to results of practical value in any field or subject within the purview of research in agricultural sciences, forest farming and social forestry and animal sciences (including fisheries).

All scientists engaged in research in the fields of agriculture, forest farming and social forestry, animal husbandry and allied sciences in India shall be eligible for the awards. The results of research achieved/contributions made during the five years preceding the year of the award shall only be considered for the awards. In the case of claims based on evaluation of new varieties/strains, the final trials should have been completed within five years preceding the year of award.

Nominations can be made among others by Vice-Chancellors of agricultural universities or other universities having faculty of agricultural or biological sciences, Directors of research institutes including Principals of Agricultural and veterinary colleges, Presidents of scientific societies, academics and heads of the principal scientific establishments in the country.

Nominations for the awards should be supported by a statement of work, achievement accomplished or performed by the candidate who is being nominated and a reasoned justification for the nomination together with reprints of publications or other supporting data.

The last date for receiving nominations for the awards is **31st March, 1981**. Five copies of the nominations on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to Shri Rup Ram, Additional Secretary (A), Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001. The copy of the proforma can be obtained from him by sending a self addressed envelope in the size of 27 cm x 12 cm. Applications/nominations received without five sets of reprints of publications are liable to be rejected at the scrutiny stage.

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

Dr. Rajendra Prasad Award for the best Original Standard Works in Hindi on Agriculture Including Animal Sciences and Fisheries 1981.

Applications are invited for Dr. Rajendra Prasad Award for the year 1981 for standard original books/manuscripts in Hindi on agriculture, animal sciences including fisheries published/written between April 1980 to March 1981. Books written by more than one author can also be considered. Five copies of the books/manuscripts for the award may be sent in a sealed cover marked 'Confidential' to Shri Rup Ram, Additional Secretary (A), Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001, latest by **31st March, 1981** in a prescribed form obtainable from him.

In all matters relating to the award the decision of the Council shall be final and no correspondence on this account will be entertained.

UTKAL UNIVERSITY

Advertisement No. Estt. I/886-C/33083/80, **Dated 31-12-80**

Wanted One Professor in Economics,

One Lecturer in Economics	— Leave Vacancy
One Lecturer in Mathematics	— Leave Vacancy
One Lecturer in Statistics	— Leave Vacancy
Three Lecturer in Physics	— Leave Vacancy
One Lecturer in Zoology	— Leave Vacancy
One Lecturer Chemistry	— Adhoc
One Lecturer in Anthropology	— Adhoc
One Lecturer in Pol. Science	— Leave vacancy,
and One Lecturer in Geography	— Leave vacancy,

in the respective Post Graduate Departments of the University in the U.G.C. Scales of Pay possessing the U.G.C. and University prescribed qualifications. Last date for receipt of applications is **31-1-1981** for regular posts and **20-1-1981** for adhoc posts.

Posts	*Specialization*
Economics-Professor	Doctorate Dagree in any one of the following :— 1. Monetary Economics 2. Public Finance 3. Developmental Economics 4. Agricultural/Rural Economics 5. Regional Economics & Planning.
Economics—Lecturer	—
Mathematics	—
Statistics	—
Physics	— One of the post of the Lecturer should have specialization in Solid State Physics. Persons having Ph. D. in experimental Physics will be preferred.
Zoology	—
Chemistry	— In Organic Chemistry
Anthropology	— Social Anthropology or South East Asian Study.
Political Science	— Comparative Politics and Political Sociology.
Geography	— Regional Planning preferably with a Degree/Diploma in Regional Planning from recognised University/Institution.

Prescribed application forms in seven copies for Regular posts and three copies for Adhoc posts and other details for the various posts can be had from the Registrar of the University in person on payment of Rs. 7.49 paise and Rs. 3.21 paise or by post on receipt of a crossed Indian Postal Order for Rs. 9/- and Rs. 4.71 paise respectively for regular and adhoc posts payable to the Finance Officer, Utkal University, Vani Vihar, Bhubaneswar-751004.

P.K. Satapathy
REGISTRAR

UNIVERSITY NEWS

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Editor: ANJNI KUMAR

Development of Higher Education in the Sixth Plan

This article is in continuation of what we reproduced in our Issue dated 15th December 1980.

COLLEGES SECTOR

The strategy to be adopted by the University Grants Commission during the next five-year plan period for the development of colleges and improvement of standards of higher education in the colleges sector would be based on the following basic principles :

Colleges which qualify for support on the basis of minimal eligibility conditions in regard to enrolment would receive *basic grants for purposes of (a) augmenting their library services by purchase of books, journals etc., and (b) improvement of laboratory facilities required for undergraduate instruction, and (c) for faculty improvement to enable teachers from colleges to improve their competence as teachers* by participation in a variety of programmes, such as, refresher courses, workshop, or working towards advanced degree, such as, M.Phil. or Ph.D. with the help of teacher fellowships. *These basic grants would be payable by the Commission on 100% basis without requiring any matching grant contribution from the college or the State Governments.*

Development grants would be available, over and above the basic grants, to colleges which satisfy the prescribed qualifying criteria of enrolment and staff-student ratio based upon the number of permanent teachers and showing some potential and capability of functioning in a viable manner and maintaining adequate standards of instruction.

Assistance for development of post-graduate colleges would be continued on the basis followed during the Fifth Plan period. Normally only those departments which fulfil the norms laid down by the Commission or can be brought to those standards in the Plan period would qualify for such assistance.

Assistance would be available to the colleges for taking up quality improvement programmes, such as COSIP, COHSSIP, Support for Research Projects, Autonomous Colleges, Lead Colleges and any other special programmes, on a selective basis.

Special consideration should be given to develop colleges in educationally backward districts, so as to bring their facilities and standards to an optimal level.

As many colleges as possible should be enabled to become autonomous so that they can, on the basis of their strength and motivation, help in bringing about academic reforms, restructuring of courses of study, and experiment with new educational ideas and function as growth points for better standards.

Reproduced from the UGC Bulletin of Higher Education.

be expected to provide leadership in this aspect of social justice and equalisation of educational opportunities in the following ways :

(i) Admit as many as possible students belonging to scheduled castes, scheduled tribes, educationally and economically backward communities and other weaker sections of the society. The colleges should gradually strive to increase admission of such students initially from 20% and over a five-year period reach about 50%.

(ii) Provide for appropriate remedial courses to enable such students from weaker sections to reach a level of comprehension and communication and thus be able to benefit from the academic programmes of study provided by the colleges;

(iii) The courses introduced would be of a restructured pattern and relevant to the region so that these students would develop necessary application skills and their potential for employment would be greater after they have obtained their degrees;

(iv) Augment facilities of hostel accommodation and enable students from the weaker sections to reside in such hostels by reserving between 20% and 50% of the seats for such students, reduce cost of living in the hostels by recourse to suitable economy measures and, wherever appropriate, participation of the students in sharing some aspects of hostel work.

While the above objectives could be kept in view in providing additional assistance to one or two colleges in a district, it is essential to recognise the fact that these colleges have also got to function as educational growth points in a district, particularly in districts with less than a population of 5 lakhs and away from the metropolitan centres.

Such colleges have, therefore to combine in a most appropriate manner, the educational efficiency and maintenance of good standards, relevance of courses of study to meet the local, regional and nation needs and welfare functions towards educationally deprived sections of the community.

Combining these three objectives in an institution of higher education in the present milieu of the Indian educational system is indeed an extremely difficult task. As such, it is equally difficult to identify one or two such colleges in the district which have the potential to provide the leadership in these areas and to give such colleges additional assistance towards promotion of these objectives.

It may be possible to *devise appropriate criteria and obtain necessary information which would enable identification of such colleges in the districts.*

These colleges may be given generally an assistance of additional Rs. 3 lakhs for activities specifically directed towards achieving the three basic objectives. Situations which demand greater assistance would also be considered on merits. Assistance for this purpose should be available on a 75% sharing basis from the UGC for all purposes.

In view of the objectives to be served by such colleges the Commission could consider whether the name 'lead colleges' conveys the message appropriately or some other suitable name could be thought of to remove any ambiguity or elitist aura on the part of colleges selected under this programme.

If, however, it is felt that it may not be appropriate to pre-select a few colleges for this purpose, it could be considered whether any college, which makes well justified proposals for promotion of the three objectives included in this programme, and has shown evidence of having successfully engaged in these processes in the past, could receive additional support on merit of each case.

Assistance to Colleges for Development of Postgraduate Education

The norms suggested for introduction of postgraduate courses in the colleges and also the existing basis and pattern of assistance is also indicated here. *The following specific points would be kept in view in assisting colleges for development of postgraduate courses* :

(i) If the colleges are expected to maintain high standards of postgraduate education and related research activity as obtained in a good university departments, assistance to the colleges should be on lines similar to those available to the university departments.

(ii) While the limits indicated department-wise for postgraduate departments (alongwith the assistance available to the college for development of undergraduate facilities) may prove adequate for college postgraduate departments. individual departments which have adequately demonstrated their efforts towards high standards of teaching and research and academic excellence may be provided additional grants on merit of each case.

(iii) Some of the college departments should also be considered for major departmental support, special assistance to selected departments so that within the colleges sector, a reasonable number of growth points towards excellence could be identified and nurtured.

The norms suggested with regard to minimum academic staff and other facilities should be generally enforced in respect of new departments likely to be started but in the case of existing postgraduate departments, assistance may be made available to enable potentially good departments not only to reach minimum standards but also to go beyond a certain critical level.

In the matter of appointment of additional staff, the colleges are likely to face difficulties in view of the workload prescribed by the State Governments. The UGC would, therefore, establish some preferential norms with regard to equivalences between undergraduate and postgraduate teaching and laboratory instructions, e.g., each lecture hour of postgraduate teaching could be equated to 1.5 hours of undergraduate teaching. In the case of science subjects, two hours of laboratory instruction could be equated to an hour of lecture work. Due relief should be given to teachers engaged in instruction in remedial courses, student project work or other innovative educational experiments, all of which demand more time and effort.

Colleges generally find it difficult to give the necessary assurance regarding taking over the recurring expenditure on additional posts as committed expenditure when the UGC's assistance ceases at the end of a specified period, particularly, where it involves concurrence of the State Governments also. The UGC may devise, in consultation with State Governments, appropriate methods so that such concurrence on the basis of the established norms for postgraduate teaching and identified workload could be obtained without delay and the departments can function with adequate staff strength in relation to their teaching programmes.

The various norms and patterns of assistance should not be applied too rigidly but must be interpreted in an educational environment.

Colleges which have both undergraduate and postgraduate programmes should invariably send integrated proposals for the total assistance so as to eliminate any disadvantages due to the horizontal stratification of facilities and programmes of departments.

Wherever inter-departmental programmes of postgraduate teaching can be initiated, the college could do so and submit their proposals keeping in view the total assistance likely to be available for the departments concerned,

Similarly, two or more departments in a given college, deficient by UGC norms when considered separately, may qualify if they join together to offer a good postgraduate inter-disciplinary course approved by the University.

If a given college department cannot fulfil the UGC norms, it can still qualify by presenting a coordinated plan for postgraduate teaching in collaboration with one or two similar departments in other colleges located nearty. Resources and other facilities can be pooled and utilised by mutual consent with the approval of the UGC. *A group of colleges in a cluster, could also participate in a coordinated postgraduate programme and seek assistance from UGC.*

Quality Improvement Programmes

COSIP & COHSSIP are among the successful programmes of the UGC having an impact on improvement of undergraduate instructional programmes in colleges and deserve to be extended and strengthened on a selective basis both at the ULP level and at the individual college level. The regional conferences organised under both programmes in the Fifth Plan would be held in the Sixth Plan on a subject-wise basis. The COSIP-ULP and COHSSIP-ULP departments are among the more qualified to develop into academic complexes for faculty improvement with hostel and other facilities for teacher-scholars.

Autonomous Colleges are to be given high priority in the Sixth Plan. Ways and means should be found to encourage universities to provide for autonomous colleges in the University Acts and to encourage colleges to opt for autonomous status under the UGC guidelines. The autonomous colleges should be carefully nurtured by the UGC so that they lack neither the funds nor the administrative and intellectual support which a new experiment would require. As many of the colleges as have succesfully implemented COSIP/COHSSIP programmes should be encouraged to become autonomous colleges.

Research, Publication, Travel and other Faculty Awards

As in the Fifth Plan.

Grants towards better Facilities for Students

Besides the basic/core grants of Category 'A' the College Development Council in each University could also look after various schemes for students such as the students aid fund and playfields. However, proposals for setting up gymnasia should be considered directly by the UGC as in the Fifth Plan.

Norms for the Introduction of Postgraduate Courses in Colleges

Recently the University Grants Commission has finalised the norms for the introduction of Postgraduate courses in colleges. As per the decision of the Commission, these norms may be applied to such departments which may be established in future. Also, the existing Postgraduate colleges may be assisted to come up to these norms. Under this scheme, teachers of the existing Postgraduate colleges who do not have post-M.A. or M. Sc. qualifications such as M. Phil. or equivalent research work and publications to their grade may be required to obtain the same within a period of five years.

Under the new norms, a college seeking affiliation at the postgraduate level must be permanently affiliated at the undergraduate level. Another condition is that the college seeking affiliation should have shown consistently good results during the last five years at the undergraduate level. The detailed Norms for the Introduction of Postgraduate Courses in Humanities, Social Sciences and Sciences are given below :

1. A college may be allowed to start postgraduate course in a subject only when there is persistent demand for teaching in that subject and enrolment of a minimum number of students every year is ensured. Opening of a new postgraduate class should be invariably linked with the manpower needs of the region. The college must be permanently affiliated and should have shown consistently good results at the undergraduate level during the last five years.
2. A college may be considered for further assistance, only if :
   (a) Available facilities in the shape of library, laboratory equipment and faculty reflect the commitment of the department and the college to the development of a particular

subject. The commitment of the college would, in particular, be seen from its overall recuritment policy, e.g. whether it has the practice of appoining only people of consistently good academic record and Ph. D's as far as possible.

(b) It serves the needs of the student community coming from the graduate colleges of the region as reflected in enrolment.

(c) The department has the scope and potentiality for development of specialisation in a particular area not available in the other colleges and universities of the region.

(c) There is a clear-cut programme of research and training to ensure quality at the initial stage of starting a department.

(e) It has faculty comparable in quality to that of a University department and demonstrates potential of growth and specialisation.

3. Postgraduate courses need not necessarily be started only in subjects which are taught at the degree level in the affiliated colleges. Interdepartmental or interdisciplinary courses may be preferred.

4. The college should make provision of funds for enabling department teachers to attend National Conferences in their subjects every year.

5. The condition for opening a postgraduate department in the college as prescribed by the university may be insisted upon specially with regard to the staff, books and equipment before providing any further support for the development of the department.

6. Annual colloquia may be organised for the benifit of the college teachers and students in which university and colleges teachers should participate.

Norms for Postgraduate Courses in Humanities and Social Sciences

1. A minimum of four teachers recognised by the University as postgraduate teachers (see paragraph 2 below) be appointed at the initial stage. The staff may be increased gradually depending upon the increase in the hours of work and the introduction of the special papers. In a postgraduate department, there should be at least four teachers with M. Phil, or equivalent degree or research work, of which there should be at least two teachers with Ph. D. degree or equivalent research work.

2. For effective postgraduate teaching, the first pre-requisite is the quality of teachers. It is imperative that teachers at this stage should have developed critical faculties of evaluating the major development in their subject. For this purpose, it should be laid down that only those persons would be recognised for postgraduate teaching who have some papers to their credit in standard research journals. In addition:

   (a) They should be required to go through and pass a post-Master's degree or diploma in Research Methodology.

   (b) In order that a postgraduate teacher may be able to specialise and carry out advanced studies or research, he should not be expected to take more than two papers in two years.

   (c) The teachers should have enough time to keep themselves abreast of the latest developments in their subjects. For this purpose, it may be laid down that the work load of a recognised teacher should not be more than 12 lectures a week.

3. A college department should have adequate material and other equipment. The departmental library should have enough copies of recommended books and at least three standard journals published during the last 10 years. For books and journals, the college should provide per department Rs, 15,000 as non-recurring and Rs. 5,000 per annum as recurring expenditure.

4. The college should provide a fixed amount every year, which is not less than Rs. 5,000 for development of research activities in the department.

5. As far as possible, at least two papers out of eight papers should be defferent from those taught at the University.

Strengthening of the teaching staff and recruitment of suitably qualified persons is the most important factor required for postgraduate education, besides availability of necessary laboratory, library and other facilities. A department seeking affiliation for starting or running postgraduate classes should have at least six teachers with post-M.Sc. qualifications such as M.Phil. or research experience as evidenced by publications. Further, at least three such teachers should have a Ph.D.degree or research publications of equivalent standard. It will also be essential for such departments to have at least one viable research programme undertaken by the staff members. Similarly, before any particular specialisation in the subject can be offered as special paper at the M.A. or M.Sc. level, there should be on the staff of the department at least two persons who are qualified in that special discipline. The total strength of the staff of such departments would, however, depend upon the total work-load, including undergraduate instruction.

Generally, an intake of 15 students should be considered as an optimum size for a unit of a postgraduate class. No postgraduate classes should be permitted to be started if the intake is less than 15 students with 50% or more marks in the subject concerned. For purposes of increasing admissions also, the unit of 10-15 should be taken into account. □

Conflict Between Coaching And Physical Education

S. Srivatsan*

The world over, in any area of human endeavour, concerted effort is exercised to achieve fruitful results with the keynote of 'Interdisdisciplinary effort'. The developed countries (U.S.A. U.S.S.R., G.D.R., Japan, West Germany, France and Australia) have set the trial for others to follow in this combined effort to attain excellence in the field of sports and games.

It is shocking, rather disgusting, to find in India the existing tension as also mutual disrespect and total neglect of relationship between Physical Education and Coaching. This malady in the field of sports promotion has been the greatest hurdle in realising the targets set to achieve laurels in the realm of national and international performances in sports and games.

The various well-intended sports and games promotion programmes by the Centre and State Government agencies prove futile due to the non-stability in his interdisciplinary approach that is evident from the present day functioning of coaching vis-a-vis Physical Education.

On a simple analogy, it is to be considered that "Physical Education is the milk and coaching is the cream," which is a part of the entire milk. But the existing trends portray a very dismal picture and present a mirage in the horizon of sports, Education, as to distort the whole perspective into semething completely devoid of any kind of link between physical education and coaching. This is the simple reason why several programmes in the field of sports coaching are launched without any consideration for basic physical education experiences. While Physical Education is as old as mankind, it is to be clearly understood that coaching in sports and games as a science has come to stay mainly, due to the advancement in the areas of physiology, kinesiology, biomechanics, psychology related to motivation, learning, emotions, health and personal hygiene. When it is so essential to work on interdisciplinary effort, for all levels of human welfare, how can coaching be considered devoid of Basic Physical Education experiences?

When a programme of physical activities is conceived in accord with today's best knowledge and administered by persons aware of the many-sided potentialities of these activities, and when both the planning and the execution of the programme are aimed to serve the physical, mental and social well-being of the participant-then the effort may be called 'Physical Education".

When the primary purpose of the activity is to gain ends that come from 'superior performance' or "overcoming an opponent and only 'secondary attention' is given to the needs of the individual" as a person or citizen, then the effort is aptly called coaching.

From the foergoing statements it is crystal clear that a few who are inducted into coaching owe their eligibility to basic physical education background and experiences. It is also to be understood, that not all persons are taken up for coaching since those who qualify for advanced instruction and training have necessarily to fulfil basic requirements to assist them in meeting successfully additional requirements in the area of Sports Coaching. But strangely enough, it is observed that the slogan 'Coaching for the Deserving' is missed and substituted by 'Coaching for all'. Of course such trends have ruined Indian sports and brought discredit to people working as administrators, teachers, coaches and specialists in the field of Physical Education and sports. No body seems to take immediate and drastic steps to correct this imbalance and the gap is gradually widening. Added to this are other factors, which heighten the tension as well as produce deeper cleavage between Physical Education Personnel and Sports Coaches.

Physical Education teachers who have been working in their own areas within the limitations imposed on them, by lack of facilities and non-acceptance as integral part of school or college staff. have found themselves in a whirlpool with the introduction of coaching programmes in educational institutions mostly managed and controlled by non-physical education personnel who have always worked in the opposite direction compared to the efforts of physical education personnel.

The second and yet another powerful factor that causes the so called 'rift' between physical education and coaching is the emergence of the trained coaches in respective activities who criticise the work (generally destructively) of physical educators who have been in the scene of sports promotion since a long time. Coaches without physical education background and physical education teachers without basic coaching experience (along modern lines) are to bear the responsibility for this distorted feature in the promotion of sports and games.

Here are a few practical suggestions to overcome conflict between Physical education and coaching:

Coaches should be given basic physical education experience by way of certification requirements as a part of training programmes especially when raw personnel are recruited for professional preparation in coaching. This means modifications in the curriculum of Institutions engaged in training of coaches.

Coaching courses should be introduced in Physical Education Colleges offering a one year or three year degree courses.

Basic general education requirements are to be strictly followed in recruiting personnel for coaching courses.

Since coaching is an adjunct to Physical Education, it should function as a specialised area under the guidance of the physical education services in schools, colleges and Universities. ☐

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Need to Strengthen Non-formal Schooling

S. C. **Bhatia**

Education seems to have become one sector of development where policy decisions are guided by political considerations. One government tries to criticise, and if possible reverse, the decisions of the earlier one; the next builds up sufficient pressure to flay the earlier decisions. The scope of such reversals is very marginal though, for the essential character of the target population, the weaker sections of society, has not substantially changed. Neither has the basic infrastructure constituting the delivery system of both formal and nonformal systems of education. The economically backward, the socio-culturally disadvantaged, women and the handicapped segments of the Indian population are still there. In fact, each elected government seems to claim their support to get to positions of power.

The rickshaw-pullers, the hawkers, the scavengers and the like have served as symbols of political support of each government. Politicians have often masqueraded as one of these segments of population to demonstrate evidence of mass political support. Yet the policy decisions in almost all sectors of development have been taken keeping in view the vested interests of the upper middle class.

When the Indira Gandhi government lost its hold in 1977, the Janata government did its best to change the 10 plus 2 plus 3 structure of education. In fact, the attempts to change the structure touched a ludicrous low with many numerical permutations being widely supported by various segments within the Janata Party. One definite policy decision that the Janata government took was to strengthen and massively expand the adult education efforts of the earlier Congress governments. Whether the Janata government fully comprehended the potential of mass awareness this programme would create is a moot question.

However, the upper middle class ruling interests understood the 'explosive' impact of a programme which could result in a greater awareness in the masses regarding their rights in a democratic polity. The opposition to the adult education programme thus grew on considerations other than educational. It was stated, perhaps quite rightly, that patronage under the programme was being extended to front organisations of some political parties.

What is being subtly attacked under the garb of this criticism is the need to provide for more educational programmes for the weaker sections of society, programmes which fall outside the pale of the formal system of education. Thirtythree years of independent India have not seen any significant change in the formal system of education so that disadvantaged sections of society could go up the socio-economic ladder through it. The excessive emphasis on the "inspectorate culture" and the subservience and almost domestic slavery of the primary school teacher to local overlords has made it almost impossible for the children from the weaker sections of society to receive adequate attention during school hours. The option of the non-formal system of education is essential even on the ground of the differing priorities in education of the weaker sections of society; they would prefer the learning process to be closely associated with the socio-economic aspects of their lives.

What we are hearing now amounts to a greater emphasis on universalisation of primary education with selective programmes for adults. Efforts are sought to be initiated alongside to check wastage and stagnation at all levels of education. Members of the Parliamentary consultative committee for the Ministry of Education have voiced concern over the high dropout rate particularly at the primary stage which is over 70 per cent in several States e.g., Arunachal Pradesh (81.59), Meghalaya (76.57), Andhra Pradesh (65.20), Assam (71.40), Bihar (72.77), Gujarat (64.90), Madhya Pradesh (68.17), Maharashtra (59.07), Orissa (70.19), Rajasthan (56.98), Uttar Pradesh (70.18) and West Bengal (67.98). Only Delhi (14.14) and Kerala (20.60) show lower dropout rates. Even these statistics have to be taken with some reservation.

These staggering percentages of dropouts add to the ever-increasing adult illiterate population either through a lapse into illiteracy or illiteracy from the very beginning. The measures to check this alarming wastage are by now well-known: provision of multiple point entry, supply of free uniforms, books and midday meals. All these measures are a part of the colonial development culture, which believed in charity to the poor to maintain their *status quo*, not in their liberation through education. We also know too well by now that a large share of these free incentives are cornered by the various middlemen in the bureaucratic and political infrastructure. Moreover, we seem to be asking the poor man to send his son to the school as all these 'gifts' are available. The poor man apparently knows better; he chooses not to spare two working hands for an education that ostensibly has no meaning for him.

So long as we continue to think in terms of making minor adjustments within the formal system of education in terms of change in time-scheduling, periodicity of vacations to enable children to work with their parents on the farms, etc.; we will not be able to overcome the human constraints that have bogged the system down. There are schools in villages where half the teachers do not come or where a few teachers are overburdened to the point of being unworkable.

(*Continued on page 59*)

CAMPUS NEWS

VCs for tightening college affiliation

The Andhra Pradesh Vice-Chancellors' Conference held in Hyderabad had decided that no affiliation should be granted to any new college that had come up with the permission of the Government unless the Inspection committee appointed by the university concerned was satisfied with the conditions laid down with regard to infrastructure facilities necessary for maintaining the required standards of education.

It was also said that with regard to engineering colleges a corpus of Rs 30 lakhs should be deposited besides having an area not less 30 acres for the construction of the college building, labs etc. With regard to medical colleges in addition to these, there must be a 700 bedded hospital where the students could have clinical studies.

The conference further expressed that in case of the new colleges which had come up and had been given affiliation on the condition that these infrastructure facilities would be provided should be given a month's time to acquire them failing which they run the risk of being disaffiliated.

The Vice-Chancellors' conference which took place in the committee hall of the Secretariat was attended by the Vice-Chancellors of all the universites of the State including those of Andhra Pradesh Agricultural University and Jawaharlal Nehru Technological University and the heads of Regional Engineering College at Warangal and the Post-graduate centre at Ananthapur.

The conference was presided over by the Minister for Education Mr. B. Venkatrama Reddy. The Minister of State for Education Mr. M. Sreenivasarao was also present.

Briefing Pressmen, the Minister for Education said that often education societies approached the Government seeking permission for starting degree colleges with a bank guarantee for the necessary corpus fund etc. but they were lax in fulfilling the obligations. Hence the Vice-Chancellors conference decided that a bank guarantee should not be accepted and that no affiliation should be granted till the inspection committees appointed for the purpose by the universities were satisfied that the conditions had been fulfilled. There were proposals for starting as many as 11 engineering colleges in the State.

The Minister said that the Vice-Chancellors' conference had decided to appoint a committee to go into the fee structure of the affiliated colleges to ensure uniformity and avoid collection of abnormal fees by the authorities of private degree and Post Graduate colleges suggesting a ceiling.

Mr. Venkatrama Reddy said that it was brought to the notice of the colleges that in some private engineering colleges the fees collected per annum was as much as Rs. 8000 per year. Even an admission form had been priced at Rs. 100. The usual fee collected in university engineering colleges was about Rs. 200. Since the private colleges have no resources it was felt that they should be permitted to collect more as fees but that they should not be exorbitant.

Another important decision of the Vice-Chancellors' conference was that the Government itself should incorporate in the G.Os issued whenever they relate to dearness allowance, house rent allowance and pay revision with regard to State Government employees, that the same would be applicable to the employees of the universities who were not covered by the scales of University Grants Commission.

It was also resolved to form a consultative committee to go into the question of the grievances of the teaching and non-teaching staff of universities. Similarly it had been decided that the University Registrars' Committee constituted in 1979 should go into the anomalies of pay scales obtaining between different universities to ensure a uniform pattern of pay scales and by the end of February, 1981 report should be submitted.

It was also decided that a committee should be appointed to go into the pattern obtaining in Bihar and Madhya Pradesh where state universities co-ordinating bodies had been formed so that a similar body could be constituted in the State if necessary with modifications.

The Vice-Chancellors' conference decided to appoint a committee with the Vice-Chancellor of Osmania University as convener to prepare a practical and purposeful grading system to give effect to the recommendation of the All India Seminar on Examinations and Educational Reforms that was held recently in the city.

The conference agreed to a proposal of Sri Venkateswara University that it should start an Academy of Oriental Studies with the support of Tirumala Tirupati Devasthanam.

The conference also asked the Vice-Chancellor of Jawaharlal Nehru Technological University to examine the possibility of having a common entrance examination for B.E. and B. Tech courses for the different university colleges.

The Vice-Chancellors' conference discussed the memorandum of the A.P. Federation of University Teachers' Associations with regard to democratisation of university administration by giving greater representations to the staff on the university bodies like Senate, Syndicate etc. and felt that since the amendment act introduced in the Assembly during the last session contained many provisions pertaining to democratisation, there was no need for examining it afresh.

UP universities to switch over to 3-year degree course

The UP Government has agreed to switch over to the three-year degree course in the state from the next academic year. Introduction to the three-year degree course, which was recommended by the Kothari Commission, will however, be done in a phased manner.

To begin with, the new system will be adopted by three universities of Allahabad, Lucknow and Gorakhpur and twenty eight selected colleges in the state. UP is the last state to adopt the new system after it was introduced in some of the states in 1976.. The Kothari Commission has recommended the introduction of 10 plus 2 plus three system to improve the standard of education.

For some time, UP deferred the decision, but later it was realised that the students graduating from the universities within the state were suffering on account of the fact that they studied in B.A. only for two years and had to compete with those who took three years and learnt more about their subjects. Not only in the matter of seeking admission for further education outside the state and in the technical and specialised institutes, but also in the competitive examinations, they did not fare well. Looking into these aspects, the state government appointed a committee of experts under the chairmanship of the Vice-Chancellor of Agra University to advise on switching over to the new system. The Committee submitted its report recently recommending phased change-over The introduction of a three-year degree course in three universities and 28 colleges would cost an extra of about Rs. four crores. The University Grants Commission was approached by the State Government, and they have agreed in principle to provide assistance to these Varsities and colleges to help in the change-over. Grants would be extended in a substantial manner under various heads. According to the details worked out the two-year B.A. course will be discontinued in these institutions. In the rest of the undergraduate colleges in the state, this will continue to operate until the changeover which might take some years. The state committee, however, made it clear that no student who has not done the three-year Honours course, will be allowed to join the post-graduate course in these all universities, including these three of Allahabad, Lucknow and Gorakhpur. To enable the students who will come through the two-year pass course to join the post-graduate classes, two types of bridge courses will be designed and the responsibility for the same would be that of the Institute of Correspondence Studies of the University of Allahabad. But for imlementing and running the bridge courses, the responsibility would be that of the related university. The intake suggested by the committee in the three universities is 500 each for Arts, 200 for Science and 200 for Commerce.For the three-year honours courses there would be no pass course here. In the 28 colleges where honours courses are being introduced, it has been suggested by the committee that the intake be determined by the existing faculty resources and other facilities in a manner that no large demands for staff are generated.

Hyderabad organises seminar on examination reform

A seminar on examination reforms was held at Hyderabad on January 3 and 4, 1981. The Government of Andhra Pradesh sponsored the seminar which was attended by the Ministers of Education of the neighbouring States, educationists, experts in examination reforms and representatives of the National Productivity Council, the NCERT the AIU, the representatives of teachers and students bodies and the Vice-Chancellors of the State Universities. The two-day seminar discussed various aspects of examination reforms including introduction of open book system of examination, use of grades in place of marks, question banks, remedial teaching and changes in syllabus.

Mr. K.C. Abraham, Governor of Andhra Pradesh while inaugurating the seminar said that examination reforms should be viewed and examined from different angles because the problem was multi-dimensional. There was an urgent need for research in evolving new system of examination reforms which could overcome the existing deficiency in the system. But he warned that any hasty decision or half-baked conclusions will be perilous to the very system which is proposed to be reformed.

Mr. Abraham said the cost of such an experimentation or erring on the wrong side would be too heavy and we could not afford it. He cautioned that the approach to the subject should not be half-hearted. We should desist from nibbling at this vital issue concerning the future of students. Besides reformation of examination and education the seminar considered vocationalisation and work experience, restructuring all courses at the university level, field work like NSS, NCC and physical education as part of education and the education of the handicapped.

The State Education Minister, Mr. B. Venkatrama Reddy said that the Andhra Pradesh was the first State in the country to consider the open book system of examination. The system was intended to offset the total dependence on memory in the existing system but memory could not be eschwed altogether esepcially at the lower levels.

Mr. Baby John, Kerala Education Minister, called it a laudable programme but he wanted the education system itself to be changed before examination reform was considered. Prof. V.V. John, former Vice-Chancellor of Jodhpur University, said that the difference between the good student and the bad student was that the bad student forgets before the examination while the good student did so after the examination. He was for the abolition of the affiliation system and for schools and colleges holding their own examinations. He said that there was too much secrecy in our examination system and he pleaded for openness.

Prof. K. Seshadri of Jawaharlal Nehru University said that the communication gap between the teachers and students has increased over the years. "We are examining a student in English while the student does not know English", he pointed out. He said earlier students entered the examination hall in an atmosphere of fear but today it was the teacher who was doing so.

Mr. V. Natarajan of the Research Unit of the AIU pleaded for making syllabus a clear, specific, unambiguous, meaningful and valid document. The structure of question paper should undergo a change. Instead of asking a student to answer five out of ten questions requiring long answers, there should be papers with objective type questions, short note questions and a few requiring long answers. He was in favour of open book system provided the questions were different from those in closed book system.

Mr. Venkatrama Reddy posed the problem of open book system. He said the level at which the system would be suittable, its probable limitations, a limited try out before it is introduced in the entire State, academic inputs, preparation of instructional material and model question papers and its impact on teachers, students and on learning processes, needs careful consideration.

Mr. Baby John said the essential features of any public examination system must be their reliability, impartiality, incorruptibility and promptness.

Seven study groups took part in the seminar and formulated recommendations which were discussed at the plenary session. As the different points of views could not be integrated into the seminar recommendations, Prof. Rasheeduddin Khan of the JNU suggested that there should be only viewpoints and no resolutions or recommendations. So it was finally agreed to incorporate all the points of view along with the group recommendations and submit them to the Government for further examination.

The Education Minister while speaking at the valedictory function assured that the State Government would give due weight and consideration to the suggestions and recommendations made by the seminar for reform in education and examination. At the same time he said that this should not be confined to this State but should be adopted by other States as well to facilitate inter-State mobility of students. He said that the State Government would forward the recommendations to the Centre so that they could be the basis for adoption of uniform pattern of education all over the country.

Madras plans modernisation of recruitment process

The Tamil Nadu Public Service Commission celebrated its golden jubilee on December 26. There is a programme of computerisation and mechanisation in its day-to-day working. It is also proposed to modernise its selection process.

Maj. Gen. S.P. Mahadevan, Chairman of the Commission said in Madras that a project study was now being carried out for simplification of the various processes for selection of candidates as also the various procedures in conducting examinations, compiling question papers and the publication of the results.

The Commission was set up by an Act of the Madras Legislature in 1930 and since then it has been the recruiting agency for several Government jobs and also acted many a time as an advisory body to the Government. The Madras Public Commission as it was known in the beginning became the Madras Public Service Commission and later in 1970, it became the Tamilnadu Public Service Commission. In the year of its birth, the Commission had received 2,104 applications and offered placement for 314 candidates. The figure had swelled to the highest ever in 1977 with the Commission receiving 3.33-lakh applications and placing 7,565 candidates in various posts. These posts ranged from that of a Deputy Collector to that of a junior assistant.

The Chairman said the Commission had plans to acquire an 'optical scanner', which would correct 3,000 answer papers in an hour. As the volume of work had considerably increased over the years, they were going in for progressive computerisation with the help of the State data centre and proposals in this connection had been sent to the Government. Besides they had plans to set up a data bank, Professors, eminent teachers, scientists and experts from other walks of life would form the bank

The setting up of a question bank was also under their consideration.

Reddi suggests seats for students from other states

The Vice-Chancellor of Osmania University, Prof G. Ram Reddi said in Hyderabad that as a practical shape to the policy of national integration every Indian university must reserve a certain per cent of seats in its educational institutions for candidates coming from other States.

He was speaking at a reception arranged at Ravindra Bharati for students from Assam, Arunachal Pradesh and Meghalaya, now in Andhra Pradesh under the Students' Experience in Inter-state Living (SEIL) Project, sponsored by the Akhil Bharatiya Vidyarthi Parishad (ABVP), Prof. Ram Reddi said the present policy went counter to the talk of national integration. The Vice-Chancellor pointed out that under the present policy students have to seek admission only in their State or region and they could not aspire to pursue education elsewhere in the country. He said "if we really mean business about national integration, we must take concrete steps at the school and college levels."

Prof. Ram Reddi said every year a number of parents, who had been transferred to Hyderabad, came to him pathetically pleading for seats for their children in local colleges. While giving priority to local candidates a percentage of seats must be reserved for outside students. He said in the U.S. a conscious effort was made to promote unity, through appropriate policies. India should think in terms of evolving policies which would strengthen unity and promote integration.

Kashmir forges ahead

Professor Rais Ahmed, Vice-Chancellor of Kashmir University said in New Delhi that his university unlike other states had no serious problem with its students. This was possible because the Chief Minister gives full support to the education department. The grant to the university has been raised from 17 lakhs to Rs. 1.04 crores in 1979-80. Unlike other states, while the affiliated colleges were under the university for academic purposes, the salaries, service rules were administered by the state government.

The university has initiated several examination reforms which has minimised the malpractices of examinations. A system of having visiting external teachers during the first semester has been introduced. This enables the faculty of sister universities to see whether the course, examination papers, allotment of marks, etc. were up to the standard.

Prof. Rais Ahmed said that a great deal of emphasis was given to research work. Out of two thousand students as many as three hundred were conducting research. Active research was being carried in politics history and philosophy by the Iqbal Institute which was set up only three years ago.

The Centre of Central Asian Studies has also conducted valuable research in Buddhism and Sufism. The State Government was so impressed with the work of the Centre that it handed over the university all its manuscripts numbering seven thousand from its quarter-century-old archives to enable the centre to set up a Central Asian Museum.

Panel to assess autonomous colleges

The Madras University has decided to constitute a review committee to evaluate the plus and minus points of the functioning of the autonomous colleges affiliated to the Madras University. This committee would include representatives of the State Government, the Director of Collegiate Education, a representative of the UGC and such other members as might be recommended by the Vice-Chancellor for this purpose. The UGC in a letter to the Secretary of the Tamil Nadu Education Department has informed that the Commission will increase non-lapsable grant of Rs one lakh a year now given to autonomous colleges to Rs two lakhs to such colleges which have justifiable needs. The Commission's assistance would be available for a period of five years. Each college would be required to submit proposals for the consideration of the commission. The Syndicate of the University at its meeting held in Madras also decided to confer autonomy to the following six colleges from thse academic year 1981-82: Women' Christian College, Madras both for the undergraduate and PG course, Avanashilingam Chettiar Teachers Training College, Coimbatore, Coimbatore Institute of Technology, Coimbatore in repect of one post-graduate course, Government College of Technology, Coimbatore in respect of two PG faculties, Vivekananda College, Madras in respect of undergraduate courses and Sriramakrishna Mission Vidyalaya, Perianaickenpalayam, Coimbatore.

Madras defers internal assessment

The Syndicate of Madras University has decided to defer the internal assessement for the present and also to do away with the first examination by holding examinations only at the end of the year for the first year students. This decision would be applicable to the undergraduate courses of arts, science and commerce faculties from the academic year 1981-82. Though there was a consensus among the Syndicate members that internal assessment was a good educational policy yet in view of the practical difficulties faced by the university it decided to keep the system in abeyance until the degree courses are restructured.

The Syndicate also allowed a period of three years from 1979 for the pre-university candidates to appear for examinations in order to complete the course on account of the introduction of the higher secondary course.

Various teacher candidates enrolled in colleges will be asked to provide new assessment marks to candidates for practical examinations. The passing minimum for these candidates will be made uniform whether in theory or practicals and prescribed as grade 'C' in university examinations in the case of postgraduate courses and 40 per cent in the university examinations in the case of degree courses.

Islamic university for Kerala

Sheikh Yusuff Assayeid Hashim al-Refai of Kuwait said in Cochin that the message of Islam was not meant for the Muslims alone but was an ideology for the entire mankind and for their uplift. It was this concept that all the prophets of Islam preached through the ages. He was laying the foundation-stone of an Arabic college which will form the nucleus of the 'Jamia Hasania', an Islamic University at South Vazhakkulam, 30 km. north of Cochin. The Sheikh said that there was need for more and more religious institutions to study and disseminate knowledge aimed at uplifting mankind. He said religious discipline was most needed in the modern world to counter the vices and lead mankind to the path of virtue. The University sponsored by the Kerala unit of the Jamat-Ulema-i-Hind would have arts, science and arabic college, nursery and high schools, hostels, an employment training centre and a full-fledged hospital. The scheme is expected to cost Rupees three crores. It will have a huge Islamic reference library. Free accommodation would be provided to the theologians who would like to make use of the library.

New Bill for Aligarh University

The Union Government has withdrawn the second Bill on Aligarh Muslim University and has introduced the third draft enactment in the Lok Sabha. Mr. S.B. Chavan, Union Education Minister, described the measures to be introduced as a consolidated Bill to amend both the Act and Statutes of the university. The latest Bill will enable the Court of the university to modify and repeal the old statutes of the university. It would also empower the university to make new Statutes on the constitution, power and function of university authorities, the appointment or election of Chancellor, Pro-Chancellor, Vice-Chancellor and other university officers and the appointment of teachers and other university employees. Under the provisions of the new Bill, the Court will have 32 instead of five representatives of Muslim culture and learning.

Law curriculum require a change

Union Law Minister, Shri P. Shiv Shanker, said in Visakhapatnam that he had addressed letters to the Bar Council of India urging it to amend the law curriculum and make it more suitable to the needs of the country. He said that there was a disparity between the theory taught and practice of law. He said that the legal curriculum should be suited to the aspirations and needs of the people. He also said that there should be no bar in setting up private colleges provided they fulfilled the conditions regarding academic standards.

Patna to start institute of journalism

Patna University will start an Institute of Journalism on the occasion of its diamond jubilee celebrations. Dr. R. Shukla, Vice-Chancellor of the University, said that the institute would be set up with the grants received from the University Grants Commission for this purpose. Besides, the university was also planning to introduce other job-oriented courses for the tenefit of the students of this region.

Bengal starts three-year course for village doctors

The first of the six medical institutions turning out medical practitioners at the end of the three-year course to meet the dearth of medical doctors in rural areas will be opened at Berhampur in Murshidabad district. The remaining five institutions will also start functioning simultaneously. The West Bengal Health Minister, Mr. Nani Bhattacharya, made this announcement in Santiniketan recently.

Another AIIMS for north-east India

The Centre proposes to set up the country's second All-India Institute of Medical Sciences in the north-eastern region to cater to the specialised medical needs of the people of the region. The Union Minister of State for Health and Family Welfare, Mr Laskar, made this statement in Silchar. He said that a team of experts would soon visit this region to locate the site and determine the size of the Institute. He said that the Indian Council of Medical Research had already set up a research station at Shillong to formulate drugs for controlling encephallitis which recently broke out in some parts of the region.

Fisheries institute for Visakhapatnam

A new unit of the Central Institute of Fisheries, Nautical and Engineering Training will be set up in Visakhapatnam in Andhra Pradesh shortly. The Andhra Pradesh Minister for Fisheries, Mr. N. Bhaskara Rao, made this announcement after a meeting with the Union Agricultural Minister, Rao Birendra Singh, in Delhi. With the establishment of fishing harbours, the number of fishing vessels of various sizes had increased in the State and this had necessitated the setting up of one more Training Institute.

Delhi to have a PRO

Delhi University will have, for the first time, a full time Public Relations Officer in the senior grade. The University Grants Commission has already given its approval.

Andhra allowed sixth university

The University Grants Commission has agreed to the proposal of Andhra Pradesh Government for establishing a new university at Anantapur. The university will be known as Sri Krishna Devaraya University. The proposal will now have to be approved by the Union Education Ministry before the State Government could take further action. The new university will be set up by upgrading the postgraduate centre now functioning at Anantapur. The University Grants Commission has suggested that the new university should be a purely residential one without powers to grant affiliation to other institutions.

This will be the sixth general university in Andhra Pradesh and will ensure two general universities for each region of Telangana, Andhra and Rayalasseema. Kakatiya University at Warangal and Nagarjuna University at Guntur were the other two recent additions. Apart from the general universities, Andhra Pradesh has also an Agricultural University located at Rajendranagar on the outskirts of Hyderabad city with research and teaching units located at different parts of the State besides a Technological University at Hyderabad. The Centre has also established a Central University in the State which is also located at Hyderabad.

UP to introduce professional oriented courses

The U.P. Education Department has elaborated its plans to introduce professional oriented courses to check the galloping unemployment in the state. The Education Minister, Mr. S. Bajpai, said in Lucknow that the Government was exploring all possibilities so that students could immediately go in for professional courses after passing out high schools and intermediates courses.

An extensive survey in four districts of the state has been lunched in order to explore the feasibility of introducing such professional courses and thereafter making a blueprint which could be implemented in the State. The survey which is being done by experts is likely to be completed by the end of 1981. The Government is also proposing to institute financial aids for the children of weaker sections through institution of special financial assistance schemes.

BHU project to ascertain Ganga pollution

Dr. Hari Narain, Vice-Chancellor of Banaras Hindu University has launched a Rs. 18-lakh scheme to study the pollution of the Ganga in Varanasi. The multidisciplinary research project is expected to complete its survey in four years. It will submit its report to the Government taking comprehensive suggestions on the prevention and control of the Ganga water pollutions and its multiple uses. The survey team consists of eminent scientists, ecologists and engineers of over 13 disciplines drawn from eight departments of the university.

Unesco team to write Asian history

An international team of specialists appointed by UNESCO has started work on a monumental history of Central Asia covering 27 centuries from the early age down to the present. The six-volume history will synthesise at the highest possible scientific level, the results of studies available on the region and to present them in a chronological order.

Personal

1. **Shri Avula Sambasiva Rao has taken over as Vice-Chancellor of Andhra University with effect from 12th December, 1980.**
2. **At the sixth annual conference of the Indian Political Science Association, Prof. B.A.V. Sharma, Head of the Department of Political Science of Osmania University was unanimously elected as the Editor of Indian Journal of Political Science.**
3. **Dr. S.K. Verma, Professor of Linguistics at the Central Institute of English and Foreign Languages, Hyderabad, has been elected President of the Linguistic Society of India for the year 1981.**

News from Agril. Varsities

HAU for disseminating agricultural technology

A study report on "agricultural marketing in Indian States" published by the Bihar State Agricultural Marketing Board, Patna has lauded the extension agencies of Haryana Agricultural University for "revolutionising the rural life of the State." The report says, "It (HAU) has played a very important role in the development of the State by creating and disseminating agricultural techno logy for higher agricultural production. The rural life of Haryana has been literarily revolutionised through the extension agencies of this University." Referring to the integrated approach the report says that the triple function of teaching, research and extension are encouraged at the highest level of the University. The Monograph has been written by Sh. Ashok Sinha, Director Vigilence who lucidily brings out the salient features of agricultural marketing in Haryana, Punjab and Rajasthan.

Agricultural chemists meet at BCKVV

The 13th Convention of the Indian Society of Agricultural Chemists was held at the Bidhan Chandra Krishi Viswa Vidyalaya. The convention was attended by a number of Scientists from different parts of India and also from Bangladesh. At the inaugural address Prof. N. Dutt, Vice-Chancellor, highlighted the pollution problems in the rural areas, especially on insecticide contamination. On this occasion, M.N. De Memorial lecture on the 'Role of organic matter (Biomolecules) on maintenance of soil fertility and agricultural production' was delivered by Dr. N.S. Randhawa, Deputy Director General, Indian Council of Agricultural Research, New Delhi. Dr. Randhawa indicated the need for maintenance of long-term fertilizer experiments for future research.

Thirty two research papers were presented in four technical sessions on Soil and Plant Nutrition, Pesticides—their effect on soil and water, Leaf Protein and Pollution and Agriculture.

New Pea Variety JM-5

"Jawahar Matar-5" developed by Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV) and recently approved for release for general cultivation by the state, is a highyielding variety giving 10 to 14 q/ha of green pods. The distinct quality of this variety, in comparison to all the promising cultivated pea varieties of today, is that it is resistant to powdery mildew which is a chronic disease of pea and sweeps out fields after fields when in full swing and deters the farmers to undertake its cultivation. The seeds of JM-5 are yellow coloured, bold and wrinkled containing 26 per cent of protein. JM 5 is a blend of three strains which were tested by JNKVV under the code numbers 6588-1, 6587-1 and P 388-1.

World Bank assistance for Assam Agricultural University

A sum of Rs. 6.20 crores out of a total of Rs. 14 crores is earmarked for the Assam Agricultural University under the World Bank assisted education project for development of agricultural universities in Bihar and Assam. Mr. R.V. Swaminathan, Minister of State for Agriculture, said in Rajya Sabha that the World Bank reimbursement for the project was partial and the remaining amount was made by the Indian Council of Agricultural Research and the State Government. The university had spent Rs. 5.54 crores upto September last year on this account. The implementation date of the project has been extendeed. Meanwhile the University Grants Commission has agreed to provide financial assistance upto Rs. one lakh a year for the five years to the college participating in a scheme to restructure the courses at the first degree level.

News from UGC

Updating economics studies

Workshops sponsored by the University Grants Commission on the Modernisation of Syllabi in Economics have expressed the view that it is essential to make economics inter-disciplinary. Such an orientation will have to be initiated and carried out mainly by senior research scholars.

Nearly 200 teachers of economics participated in these workshops which were held at five universities over a period of three days each. These Centres were Sardar Patel University, University of Calcutta, Panjab University, Aligarh Muslim University and Karnatak University.

A report based on the recommendations of the workshops says that most of the theoretical concepts evolved in the context of the developed industrial societies of the West are presently mechanically doled out to students. Not unnaturally, they are found to be of little avail in an undertstanding of the Indian situation. The report stresses that economic theory will acquire a meaningful thrust only if it is placed in a specific Indian context including institutional variables and constraints, which define it.

No less important, the report adds, is the recognition of the special peculiarities of the Indian Economy on account of regional differences. A better view of the economy can emerge only if it is considered as a complex of sub-economics, each having its own distinctive characteristic.

The workshops stressed that economics should be treated as issue-oriented at the early stage. Economic aspects of relevant problems like poverty, unemployment, inequality should be discussed so as to drive home to students the application of economic concepts and the idea of relevance.

On post-graduate courses, the report notes that the basic purpose of the M.A. course should be to provide a measure of specialisation in the subject, so that students can handle the problems independently in terms both of formulation and solution. In post graduate studies, it will be worthwhile to assign greater importance to economic theory and analyiss so that the student isprepared for a wide range of careers. There was a broad agreement at the workshops on the introduction of Statistics and Mathematics as compulsory courses at the Honours stage and Econometrics as an optional course at the M.A. level.

The report, which also includes recommendations of a seminar on the teaching of economics, says that refresher courses should be conducted for teachers in economics as frequently as in natural sciences. Tutorial classes should be within the university system. There should also be an arrangement for a periodic evaluation of teachers performance.

The seminar felt that writing of good text books should be recognised as a responsibility that the teacher owes to the community. In return, the community should recognise that this is as important as a good piece of research.

The report has been circulated to universities.

Review to promote communal amity

The University Grants Commission has asked universities and colleges to examine the books in use in the light of a Minorities Commission recommendation for such a review to promote communal amity.

The Minorities Commission's recommendation was for replacement in schools and colleges of text books which tend to instil in young minds feelings of animosity between communities. It wanted them to be replaced by books which encourage feelings of equity and brotherhood between the members of all communities.

UGC to award 100 post-doctoral fellowships

The University Grants Commission has decided to award 100 post-doctoral fellowships in science, humanities and social sciences of the value of Rs. 900 each a month. The fellowships are for research workers and teachers below the age of 45 and are tenable for two years. In addition the UGC will also award 50 research associateships in science and humanities including social sciences, engineering and technology and Gandhian Studies. The associateships are in three categories, carrying a consolidated monthly emolument of Rs. 1,100, Rs. 1,300 and Rs. 1,500 respectively. Both the fellowships and associateships carry an annual contingency grant of Rs. 4,000.

Associateships are for research workers and teachers below 45 years, who have obtained a doctorate degere, have published research work to their credit and who have shown evidence of independent research work. Candidates for the award of research associateship in Gandhian Studies should have either Ph. D. or research experience or practical experience in the field. The associateships are tenable initially for three years, extendable by an another term not exceeding two years. Ten per cent of the fellowships are reserved for Scheduled Caste/Scheduled Tribes candidates, provided they fulfil the minimum qualifications.

Norms for opening new universities

The University Grants Commission has suggested to the State Governments that before they decide to establish new universities there should be proper survey of all the available facilities in the State and their utilisation. This would help to establish the need for more universities in terms of academic considerations and availability resources. It has therefore been recommended that no more colleges be normally established except in cases which are identified as backward and where facilities for higher education are inadequate. At present the primary responsibility for establishing new universities or new colleges rests with the State Governments. They do not require any formal approval of the Central Government or the University Grants Commission but any new university or college established after June 1972 required to be declared fit by the UGC so as to enable them to become eligible for financial assistance from the Commission.

Science & Technology

Science to catch them young

The Department of Science and Technology is formulating a scheme to promote scientific interest in youth during the Sixth Plan period. Under the scheme, young scientists will be given training to deal with matters relating to science and technology. As part of this scheme, it is proposed to involve young scientists in seminars and symposia and provide travel grants for them in the process of development of science and technology. This information was made available by the report of Task Force presented to the Science Congress held recently in Varanasi.

The report details the various steps as follow-up action taken by the Government on the recommendations of the Science Congress held during the past 10 years. The scheme will provide some relief to the unemployed scientists and technologists whose number in the country now is three lakhs. To transfer laboratory findings to the rural areas, the Council of Scientific and Industrial Research has set up polytechnics in research and development.

The University Grants Commission also proposes to introduce new courses in the university curricula relevant to rural and urban development and the requirements of the region during the plan period. The improvement of curricula and restructuring of course would, therefore, receive a high priority during the current plan period. The UGC has identified 186 colleges for launching the programmes for introducing workshop technology, instrumentation, horticulture, fisheries, applied nutrition and public health, micro-biology, soil science, agro-chemicals and fertilisers and dairy science. The outlay per institution is estimated at Rs. five lakhs during the five years of the Sixth Plan. The UGC has also evolved a scheme to start a post—B.Sc.

diploma course with vocational bias.

Commonwealth satellite to be launched

The United Kingdom has proposed a plan for pooling resources among Commonwealth countries to build a heavy Commonwealth Satellite to be launched from Sriharikota after 1986. Such a Commonwealth Satellite will not only help these nations save time, money and resources in building the satellite but also help them derive immense benefits through its payload in communication networks, television exchange programmes and remote sensing for natural resources.

While concurrence of other commonwealth nations is awaited, India has endorsed the suggestion. Britain had specifically requested India for launching her heavy payload satellite from Sriharikota for which she would make payments. Prof. Satish Dhawan, Director of the Indian Space Research Organisation and Secretary in the Department of Space Research said in Madras that the above request was made when an ISRO team lead by Prof. Yash Pal, Director of the Space Application Centre, Ahmedabad, visited Britain for consultancy work. A number of other nations in the developing world have approached India for transfer of space technology and suggestions for launching their satellites from Sariharikota following the succesful launching of the Rohini satellite.

The launching of the India's polar satellite launch vehicle which can inject into orbit a 600 kg satellite and the augmented satellite launch vehicle that can put into orbit a 150 kg satellite in 1984 and 1986 respectively were being watched closely by Britain as a prelude to making the Commonwealth satellite a a reality through India.

IMH collaboration with India

The Mech. Engg. Deptt., of Sardar Vallabhbhai Regional College of Engg. & Tech., Surat, has to take deep interest in the fields of Materials Handling. The Institute of Materials Handling—U.K. therefore, has shown sufficient interest to form its Indian Division with the help of Mechanical Engineering Department of this College. Shri Upendra S. Bhatt of this department has been entrusted to pioneer its formation. The IMH—U.K. has international reputation with over 25000 members scattered all over the world. It has its overseas divisions at New Zealand, Singapore, Malaysia and now in India. This Institute is affiliated to the International Materials Management Society of U.S.A. & Canada V.D.I., West Germany and National Materials Handling Institutes of Australia, Japan, Ireland and South Africa. The preliminary work of its formation is in progress and new membership is encouraged. Establishment of its new Overseas Division in India provides an interesting platform to promote and safeguard the interest of the development of the Materials Handling Science and engineering in India."

Science congress sets up task force

Prof. A.K. Sharma, President of the Indian Science Congress said in Varanasi that a 13-member Task Force has been constituted to review the implementation of various decisions of the Science Congress. It will also monitor the implementation programme of the Congress He said that the Task Force will have statutory powers with scientists and administrator, Prof. M.G.K. Menon as its Chairman. The Task Force has both official and non-official members.

The Science Congress President informed that the Congress had decided to prepare comprehensive reports of its sessions every year instead of consolidating them after every five years. The presentation of such reports would help the Government and other organisations in taking quick follow-up actions.

Awards & Medals

BHU honours noble laureates

The Banaras Hindu University has honoured Dr. Abdus Salam of Pakistan and Dr. Hargobind Khurana with the Doctorate Degree (Honoris Causa) at a special convocation. The other who were honoured included Dr. T. Casperson, Head of the Karolinsk Institute in Stockholm, Dr. M.S. Swaminathan, Member, Planning Commission, Dr. Devendra Lal, Director of the Physical Research Laboratory, Ahmedabad and Dr. M.G.K. Menon, Secretary in the Department of Science and Technology. Dr. Salam and Dr. Khurana received the degrees in absentia.

The citation for Dr. Salam described him as a great spiritualist and a dedicated champion of science in the third world countries. Dr Khorana was hailed as a towering intellectual and a master caraftsman.

The citation for Dr. M.S. Swaminathan described him as a great planner and leader in bringing about the green revolution in India, Prof. M.G.K. Menon was described as an outstanding physicist.

Both Dr. Swaminathan and Prof. Menon, in their replies while accepting the degrees, called upon university scientists to play a leading role in the scientific and technological development of the country.

The special convocation was presided over by the Chancellor, Dr. Vibhuti Narain Singh.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Ajmal, Naseem. Studies of certain generalized groups. University of Delhi.

2. Chaube, Girish Chand. The differential geometry of Finsler and special Kawaguchi spaces. University of Gorakhpur.

3. Chowdhery, Vijay Shankar Prasad. On certain transformations in Finsler spaces. University of Gorakhpur.

4. Maharana, Karamadeva. Some consequences of unification of weak and strong electromagnetic interactions in Su(3) Xu (I) gauge models. Sambalpur University.

5. Moharir, Shripad Keshaorao. A study of generalized Whittaker transform and applications of special functions to a class of probability distributions. Nagpur University.

6. Qureshi, Gulzar Ahmed. On some tanden/bitanden queueing problems. Garhwal University.

7. Rai, Ram Pravesh. On shock waves and weak discontinuities in radiative gases. University of Gorakhpur.

8. Singh, Jang Bahadur. Radiation effects on shock waves in conducting and nonconducting fluids. University of Gorakhpur.

9. Srivastava, Ravindra Kumar. Studies of subspaces and curvature tensors of Finsler spaces. University of Gorakhpur.

10. Subbaiah Sastry, D.V. Cross-field effects on dusty viscous flows. Sri Venkateswara University.

11. Tapi, Uttam D. Some problems related to separation axioms and connectedness in topology. University of Saugar.

12. Tripathy, Upendra Kumar. Some boundary value problems in non-Newtonian flows with and without heat transfer. Utkal University.

Statistics

1. Agarwal, Basant Lal. Inference procedures for testing main effects in three way layout in the mixed model. University of Rajasthan.

Physics

1. Agarwal, K.L. Propagation of variable energy blast waves through non-uniform media. Agra University.

2. Aglawe, Krishna Bhishamarao. Studies of surface contributions in gas discharges. Nagpur University.

3. Charyulu, E. Govindaraja. Ultrasonic studies in some liquid media. Osmania University.

4. Chattopadhyay, Amiya Kumar. A study of plasma in a magnetic field using pig type of discharge. University of Calcutta.

5. Gupta, Devinder. A study of the electronic and vibrational spectra of some keto-compounds. University of Jammu.

6. Gupta, S.K. Stars in the instability strip of the H-R diagram. Agra University.

7. Manchanda, V.K. Defect induced properties of solids. Garhwal University.

8. Mittal, Vijay Kumar. Study of nuclear levels in some low and medium mass nuclei. Panjab University.

9. Padmakar. Electro-optical studies of some organic materials. University of Gorakhpur.

10. Pal, Deepti. Mechanical and surface structural studies on biological specimens. University of Jabalpur.

11. Shrivastava, Suresh Kumar. Electrical and optical properties of rigid glasses formed by dispersing organic molecular compounds in polymeric matrics. University of Saugar.

12. Surendra Pal Singh. Low energy plasmon satellites in the X-ray emission spectra of solids. Agra University.

13. Thakur, A.K.S. Nonlinear interaction of laser beams with plasmas. Agra University.

14. Trehan, Satish Kumar. Some studies on ionospheric and magnetospheric phenomena from propagation type experiments in different frequency bands, University of Calcutta.

15. Tripathi, Ravindra Nath. Luminescence of CaS: Tb: Eu phosphors. University of Saugar.

16. Verma, Brij Mohan. Dislocation behaviour and ultrasonic attenuation in normal and superconducting tin and indium doped tin. University of Delhi.

Chemistry

1. Acharya, Pratima. Physico-chemical studies of the metallic complexes of hydroxy derivatives of pyridine. Garhwal University.

2. Agarwal, Mamta. Search for new antibacterial, antifungal agents and analytical reagents. Agra University.

3. Agarwal, R.C. Synthesis of some new azo dyes and their interaction with metal ions. Agra University.

4. Chaudhuri, Bidyut Kumar. Study on heteropoly acids. University of Calcutta.

5. Desai, Dhirajlal Jivrajbhai. Study on phenol-hydrocarbons resins. Sardar Patel University.

6. Dhar, Tarunkumar. Studies on Solanum alkaloids. University of Calcutta.

7. Gangi Reddy, G. Vinyl polymerisation in the presence of molecular oxygen: A kinetic study. Sri Venkateswara University.

8. Gupta, Atul Kumar. Synthesis and physico-chemical studies on the interaction of anils with some Lewis acids and inorganic gels. Garhwal University.

9. Jagvir Singh. Synthesis and physico-chemical studies of simple and bimetallic alkoxides of a few later '3d' transition metals. University of Delhi.

10. Jain, A.K. Physico-chemical studies on ternary complexes of some oxometal ions. Agra University.

11. Kailash Chandra. Preparation and characterization of some organometallic complexes of titanium (IV). University of Delhi.

12. Kapoor, Surendra Kumar. Physico-chemical studies on composition and chemistry of lignin and carbohydrates of etaresd, Cochlandra travancorica. Garhwal University.

13. Madnawat, S.P. Investigations on the kinetics and mechanism of chloraminometric oxidation of some typical carbohydrates and alcohols-glucose, fructose, sorbital, mannitol etc. Agra University.

14. Mahavir Singh. Kinetics and mechanism of metal ion catalysed oxidation of some amines by hexacyanoferrate (III). Agra University.

15. Misra, Abha Rani. Studies on heteroligand ternary and quaternary complexes of some transition metals. Agra University.

16. Namwar Singh. Kinetics and mechanism of solid state reactions. University of Gorakhpur.

17. Pandey, Devi Prasad. Studies on metal carbonyls and their substituted derivatives. University of Gorakhpur.

18. Patel, Ghanshyambhai Pragjibhai. Studies on carbohydrate content of cow-milk under different dietary conditions. Sardar Patel University.

19. Patel, Subhashchandra Hirabhai. Synthesis and study of copolymers of maleimides and bismaleimides. Sardar Patel University.

20. Pattnaik, Ramachandra. Studies on heterocycles and natural products. Sambalpur University.

21. Pattanayak, Anuradha. Studies on kinetics of some polymeric systems. Utkal University.

22. Sharma, Bansi Lal. Chemistry of some organic eutecties. University of Jammu.

23. Sharma, Mahesh Kumar. Physico-chemical studies of oil-in-oil emulsions with surfactants as emulsifiers. *D. Sc.* Garhwal University.

24. Sharma, S.K. Physico-chemical studies on mixed ligand complexes of some rare earth metals. Agra University.

25. Shukla, B.S. Studies on diazepine related substances. Agra University.

26. Shukla, D.S. Synthesis with diazoacetic ester. Agra University.

27. Srivastava, Rishiji, Nitrosyl complexes of vanadium. University of Gorakhpur.

28. Srivastava, Umakant. Stereochemical features vis-a-vis spectral and magnetic properties of some metal complexes derived from Schiff's bases. Agra University.

29. Subba Reddy, V. Venkata. Physico-chemical studies of some binary and ternary chelates. Osmania University.

30. Suri, Rakesh Krishan. Chemistry of essential oils of some plants from Dehradun forests. Garhwal University.

31. Venkateswarlu, Revuru. Crystalline constituents of some Euphorbiaceae plants and acid catalysed rearrangements of hydroxyfurofurans. Andhra University.

32. Walia, Rita. Some aspects of organotin chemistry. Panjab University.

33. Yougesh Chander. Preparation of some derivatives of cedranoid terpenes and a synthesis of an analogue of disparlure. University of Delhi.

Earth Sciences

1. Kapur, Kushal Chand. Sedimentological studies of Siwalik group of rocks between Ravi and Beas rivers, Kangra Hills. University of Jammu.

2. Mazari, Ram Krishan. Geomorphic evolution around Srinagar, Kashmir Himalaya. University of Delhi.

3. Mehra, Shailendra. A study of ostracoda from the miocene beds of Southwest Kutch, Gujarat, India. University of Rajasthan.

4. Ramana Rao, Turlapati. Inadvertent weather modification: A case study of rainfall around steel industries. Andhra University.

5. Sribari, Yariagadda. Origin of Visakhaptnam red sediments east coast of India. Andhra University.

6. Subba Reddy, N. Mineralogical, magnetic and chemical studies on the magnetites from Tamil Nadu, India. Sri Venkateswara University.

7. Viswanath, Kandarpa. Studies on the origin of barite deposit and associated rocks from Mangampeta area, Cuddapah District, South India. Andhra University.

Engineering & Technology

1. Gogte, Bhalchandra Bhagwanrao. Studies in utilization of non-edible oils. Nagpur University.

2. Krishnaswamy, G. Geometry of Dune bed forms in unidirectional flow. Sambalpur University.

3. Modi, Pashupati Nath. Characteristics of flow on channel junctions. University of Rajasthan.

4. Sant, Mukund Trimbakrao. Some studies in a fault location and relaying for power transmission lines. Nagpur University.

BIOLOGICAL SCIENCES

Anthropology

1. Gaur, Neelam. A study of dermatoglyphics in familial deafness. University of Delhi.

Biochemistry

1. Sobhana Raj, A. Deva. Studies on the regulation of diamine oxidase in germinating pea seeds. M.S. University of Baroda.

Microbiology

1. Mehta, Harshvardhan Bhanushanker. Studies on riboflavin synthesis by Eremothecium ashbyii. M.S. University of Baroda.

Botany

1. Abbasi, Farhat. Studies on plant parasitic fungi of Gorakhpur with special reference to gall forming forms. University of Gorakhpur.

2. Adhikary, Siba Prasad. Physiological studies on heterotrophic growth of Westiellopsis prelifica Janet. Berhampur University.

3. Arundhati, Koneru. Genotypic control of fertility and meiotic chromosome behaviour in autotetraploid pearl millet, Pennisetum typhoides (Burm) S and H. Andhra University.

4. Bhadouria. Sindhu Raj Singh. Combining ability character correlations and genetic components studies in wheat, T. aestivum L. University of Jabalpur.

5. Bhatla, Satish Chander. Physiology of sexual reproduction in Bryum argenteum Hedw. University of Delhi.

6. Bisht, I.S. Studies on wart disease of cucurbits. Agra University.

7. Das, Pijush Kanti. Microbial decomposition of the pine litter: An ecological study. North Eastern Hill University.

8. Datta, Karanjit Singh. Effect of gibberellic acid and some phenolic compounds on growth and development of Panicum miliaceum and Triticale. Panjab University.

9. Dhar, Autar Krishan. Genetic and morphological studies on Atropa belladonnas. University of Kashmir.

10. Khosla, Neelima. Ecophysiological responses of certain plant species to fertilizer factory effluent. University of Gorakhpur.

11. Krishna Prasad, T. Physio-anatomical studies on shoot buds and root-borne buds of some dicotyledons. Sardar Patel University.

12. Langar, Anima. Studies of nucleolar organisation in some angiosperms. University of Jammu.

13. Maheshwar Rao, E. An ecological study into the periphyton of Husain Sagar and Faukks Sagar lakes, Hyderabad, A.P., India. Osmania University.

14. Mujral, Gavinder Kaur. Some aspects of the reproductive biology of two members of Archegoniatae. University of Delhi.

15. Nautiyal, Bhagwati Prasad. Growth development and productivity potentials of some C-3, C-4 and GAM plants at different altitudes in Garhwal Himalayas. Garhwal University.

16. Pandey, Raghubansh Mani. A study on chemical control of Cyperus rotundus. University of Gorakhpur.

17. Pandit, Peshkar Nath. Cytomorphological and genetical studies on Chrysanthemum cinerariaefolium. University of Kashmir.

18. Rizvi, Syed Javed Hasan. Assay of higher plants for their herbicidal activity and evaluation of some pest controlling properties of the isolated active principle. University of Gorakhpur.

19. Saraswat, R.P. Studies on fungi infections in linseed, Linum usitatissimum L with special reference to seed disorders. Agra University.

20. Satapathy, Bighneswar. Factors influencing the virulence of Xanthomonas translucens f.sp oryziocla. Utkal University.

21. Saxena, Abhay Raj. Evaluation of higher plants for their fungitoxic properties. University of Gorakhpur.

22. Sharma, Arun Kumar. Systematics and cytology of some powdery mildews pathogenic on trees of J. & K. State. University of Jammu.

23. Singh, Ashok Kumar. Antifungal activity of volatile fractions of some higher plants. University of Gorakhpur.

24. Srivastava, Anand Kumar. Succession of mycoflora on poultry litter in relation to enzymatic and antagonistic effect of different fungi. Agra University.

25. Todaria, Nagendra Prasad. Growth behaviour and functional dynamics of plant species from different altitudes in Garhwal Himalayas. Garhwal University.

26. Velayudhan, Sundari. Inheritance of vegetative, floral and fruit characters and palynological Studies in Lagenaria siceraria Mol. Standl. Bangalore University.

Zoology

1. Agarwal, Basant Kumar. Some aspects of aphid (Homoptera: Insecta) studies in Sikkim and Bhutan. University of Calcutta.

2. Aggarwal, Ved Parkash. Experimental studies on the environmental regulation of larval diapause in the stored grain pest, Trogoderma granarium Everts. University of Delhi.

3. Chaturvedi, Mrinalini. Studies on the pancreas with special reference to islet of Langerhans of fresh water teleost, A. testudineus. University of Gorakhpur.

4. Dubey, Jagat Narain. Brain of some carnivorous fishes with special reference to pineal organ. University of Gorakhpur.

5. Grover, P.P. Study of biology, behaviour and sexual dimorphism of some Indian teleosts. Agra University.

6. Gupta, Kadambari. Cyclic changes in pituitary gland in relation to gonadal maturity in Channa punctatus and Puntius sophore. University of Jammu.

7. Gupta, Santosh. Taxonomic studies on the oriental

Ichneumonidae belonging to the tribe Gabuniini (Hymenoptera; Ichneumonidae). University of Delhi.

8. Kar, Rabi Narayan. Effects of three tranquilizers on the mitotic, meitotic and post-meiotic cells of mica. Sambalpur University.

9. Lall, Alexander. Field ecology of the high altitude soil insects of the upper reaches of Kulu Valley (North West Himalaya). Agra University.

10. Maheshwari, U.K. Ecological studies of Hemiechinus suritus callaris (Gray) inhabiting in the subtropical thorn forest in Chhaleswar Ravines at Agra, India. Agra University.

11. Manjula, A. Studies on the testis, epididymis and ductus deference under normal and altered physiological conditions of the slender loris, Loris tardigradus lydekkerianus Carb. Bangalore University.

12. Mohan Swaroop. Studies on trematodes of some of fresh water fishes of Uttar Pradesh (Mathura Region). Agra University.

13. Pal, Anjankumar. Physiological studies on the thyroid hormone action in the nucleo-cytoplasmic relationships in different vertebrates (Mammals, amphibia and fish). University of Calcutta.

14. Pandey, Sanjay Kumar. Histopathological, biochemical, phytotoxic and behavioural effects of chemosterilant thiourea on aznkibean weevil, Callosobruchus chinensis (L) (Coleoptera: Bruchidae). University of Gorakhpur.

15. Patro, Raghunath. Chromosomes of some marine and estuarine fishes. Berhampur University.

16. Ram Ratan. Ecology and control of Acrida exaltata Walker. Agra University.

17. Roy, Debjani. Studies on certain aspects of ecology and development of Rana limnocharis Weigmann. North Eastern Hill University.

18. Srivastava, Om Prakash. Studies on the toxic effects of certain agrochemicals on the osmoregulatory organs of some freshwater teleosts. University of Gorakhpur.

19. Tyagi, V.K. Morpho-histology, physiology, histochemistry and biochemistry of the alimentary canal of few common snails. Agra University.

20. Verma, Vijay Singh. Morphological and biochemical studies on the blood of the spiny-tailed lizard, Uromastix hardwickii Gray with special reference to the electophoretic analysis of serum proteins. Agra University.

21. Vikram Reddy, Malapie. Ecosystem of a pine forest in North-Eastern India with particular reference to consumer and decomposer arthropods. North Eastern Hill University.

Medical Sciences

1. Jha, Vinay Kishore. Ayurved mein netrarog: Ek adhyayan. K.S. Darbhanga University.

2. Mohammad Tariq. Effect of combination of stresses on myocardial metabolism and its modification with drugs. University of Rajasthan.

3. Rej, Swapan Kumar. Study of the effect of surgical separation of caput epididymis from the testis with special reference to fertility in rats. University of Calcutta.

4. Uppal, A.K. Comparative effects of two duration load method and interval running method on cardio-respiratory endurance and selected physiological variables. Jiwaji University.

Agriculture

1. Ahlawat, Yashvir Singh. Studies on a mosaic disease of radish. Agra University.

2. Anil Kumar. Evaluation of soil properties and crop growth in saline sodic soils with particular reference to pyrites application. C.S. Azad University of Agriculture and Technology.

3. Brij Pal Singh. Studies on variability and inheritance of some yield contributing characters in field pea, Pisum sativum sub sp. Arvense, Peir. Agra University.

4. Deshkar, Sharad Mahadeorao. Effect of continuous manuring and multiple cropping on yield and fertility status of black soil. Jawaharlal Nehru Krishi Vishwavidyalaya.

5. Dhanorkar, Balasaheb Keshavrao. Investigations on pod borer resistance in pigeon pea, Cajanus cajan (L) Millsp. Marathwada Agricultural University.

6. Durong, John Kharbuki. Genetic divergence, combining ability and heterosis in soybean, Glycine max (L) Merrill. Kerala Agricultural University.

7. Gopalrao Reddy, Venkat. Line X tester analysis of combining ability, gene effects and heterosis in Gossypium arboreum L. Marathwada Agricultural University.

8. Gupta, Neerja. Studies in nitrogen, phosphorus and sulphur nutrition of Bengal gram, Cicer arietinum. C.S. Azad University of Agriculture and Technology.

9. Krishna Kant. Studies on protein content in peas and cowpeas and its inheritance. Agra University.

10. Kulkarni, Chandrashekhar Sitaram. Investigations into fungi of Maharashtra with special reference to parasitic and hyperparasitic species. Mahatma Phule Krishi Vidyapeeth.

11. Mali, Chandrakant Vishwanatrao. Response of rice (Oryza sativa L) to varying soil moisture and bulk density conditions. Marathwada Agricultural University.

12. Man Mohan Singh. Gap and constraint analysis of rice productivity in varying conditions of Uttar Pradesh. C.S. Azad University of Agriculture and Technology.

13. Pal, Pratibha. Studies on the control of seed deterioration in rice, Oryza sativa L. University of Calcutta.

14. Prasad, Dharam Dhweja, Nutrient availability, ion uptake and quality characteristics of rice as affected by macronutrients and biocides. Garhwal University.

15. Rajendra Prasad. Possibility of income enhancement through use of modern technology in agriculture. Agra University.

16. Samar Singh. Studies on the effect of nitrogen, phosphorus and oil quality of safflower, Carthamus tinctorious L. Agra University.

17. Saxena, Audhesh Bux. Studies on the effect of N,P & K on the growth, yield and quality of apple, Malus pumila Mill cv. Royal Delicious at Dirang under Arunachal conditions. C.S. Azad University of Agriculture and Technology.

18. Sharma, Indu. Studies on leaf crinkle disease of urd bean, Vigna radiata var Mungo. Himachal Pradesh Krishi Vishwavidyalaya.

19. Sheo Prasad. Compatibility of pesticides with other agro chemicals. C.S. Azad University of Agriculture and Technology.

20. Singhal, M.K. Genetics of yield and yield components in pearl millet. Agra University.

21. Subba Rao, M. Studies on epidemiology of sandal spike disease in forests of Karnataka. University of Agriculture Sciences, Bangalore.

22. Sudhakar, Tummala Ratna. Relative resistance of wheat, raw and parboiled rice varieties to Sitophilus oryzae Linnaeus in relation to their physical and biochemical parameters. C.S. Azad University of Agriculture and Technology.

23. Trivedi, Mukund Dynamics of fertilizer nutrients (N, P & Zn in salt affected soil and their availability to crops. C.S. Azad University of Agriculture and Technology.

24. Venugopal, V.K. Pedologic studies on lateritic catenary sequences occurring in Kerala. Kerala Agricultural University.

Veterinary Science

1. Mathur, C.R. Studies on the calcium and phosphorus requirements of caged layers. Andhra Pradesh Agricultural University.

2. Ramakrishnan, A. Studies on the estimation of metaboliable energy of poultry feed ingradients. Andhra Pradesh Agricultural University.

3. Sharma, R.N. Studies of foot and mouth disease virus type 'C'. Agra University.

4. Singh, Raghu Nath, Genetic analysis of a closed flock of Beetal goats. Panjab University.

5. Singh, S.B. Studies on the reproduction of female goat, Capra hircus L. Agra University.

6. Verma, Tarun Kumar. Studies on biology and control of some important cestode parasites of domestic animals. C.S. Azad University of Agriculture and Technology.

ADDITIONS TO AIU LIBRARY

Australian Vice-Chancellors' Committee, Canberra. *Supervision of external postgraduate study:* Canberra, Author, 1980. 3p.

————————. *Travel and subsistence allowances: Non-university staff members of university committees.* Canberra, Author, 1980, 6p.

Education for rural development: National seminar, 1976 and National conference 1976; Background papers, VI. Delhi, National Staff College for Educational Planners and Administrators, 1976. discontd.

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Goodenough, S. *Directorate of correspondence courses, Panjab University, Chandigarh: A case study in distance learning systems.* Milton Keynes, Open University, 1978. i, 33p.

Hirlekar, Yamunabai. *University education in Western Germany: A brief survey.* Delhi, Popular Prakashan, 1956. 212p.

————————. Vocational education in Western Germany. Delhi, Popular Prakashan, 1962. 175p.

H.J. College of Education, Bombay. *Community learning and the Institutes at Kosbad: A case study of agricultural institute and Gram Bal Shiksha Kendra.* Bombay, Author, 1973. iv, 57p.

————————. *Development of curriculum; Facilitating teacher-education on the basis of the principles of life-long education.* Bombay, Author, 1976. iv, 106p.

Holmes, Brian, *International guide to education systems.* Paris, Unesco, 1979. 288p.

Independent Commission on International Development Issues (1977) (*Chairman: Willy Brandt*), *North-South: A programme for survival-report.* London, Pan Books, 1980. 304p.

Kamble, N.D. *Structure and determination of manpower resources.* Delhi, Ashish, 1980. viii, 240p.

Kaye, A.R. *Allama Iqbal open university, Pakistan: A case study in distance learning systems.* Milton Keynes, Open University, Centre for International Cooperation and Services, 1978. iii, 28p.

Litt, Edgar and Parkinson, Michael. *US and UK education policy: A decade of reform.* New York, Praeger (c1979) x, 161p.

Malassis, Louis, *Rural world: Education and development.* Paris, Unesco, 1976. 127p.

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McNown, John Sc, ed. *Staff development for institutions educating and training engineers and technicians: A study dealing with the special problems of developing countries.* Paris, Unesco, 1977. discontd.

Mialaret, Gaston, ed. *Child's right to education.* Paris, Unesco, 1979. 258p.

Paris, OECD. *Education and regional development. 2V.* Paris, Author, 1979. 91p. 459p.

————————. *Education and working life.* Paris, Author, (c1977) 62p.

————————. *Measuring social well-being: A progress report on the development of social indicators.* Paris, Author, 1976. 213p.

Saruski, Jaime and Mosquera, Gerardo. *Cultural policy of Cuba.* Paris, Unesco, 1979. 50p.

Shertzer, Bruce and Linden, James D. *Fundamentals of individual appraisal: Assessment techniques for counselors.* Boston, Moughton Mifflin, 1979. xiv, 588p.

Srivastava, A.K. and others. *Language load: Report of the survey of the opinions of students, parents and teachers on the various aspects of the problem of load of learning several languages.* Mysore, Central Institute of Indian Languages, 1978. xvii, 162p.

Srivastava, H.S. *Examination reforms in India.* Paris, Unesco, 1979. 100p.

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————————. *Social sciences in Asia. 3v VI. Bangladesh, Iran, Malaysia Pakistan, Thailand.* Paris, Author, 1976. 54p.

Wall, W.D. *Constructive education for special groups: Handicapped and deviant children.* Paris, Unesco, 1979. ix, 144p.

Williams, Peter. *Planning teacher demand and supply.* Paris, Unesco, IIEP, 1979. 99p.

Need to Strengthen Non-formal Schooling

(*Continued from page 46*)

In fact, statistics report existence of schools and teachers which are not traceable.

Where we do have primary school teachers, they are either working for the local MLA, the Education Officer, the sub-inspector of schools or the Panchayat Pradhan. As if that is not enough, the school teacher is asked to do all kinds of jobs like that of an enumerator during census operations, motivator in family planning campaigns, sometimes even an anti-Malaria worker. One wonders if he ever gets the time to teach. If he does not oblige in these matters, the local office is always ready with an order for his transfer, extinguishing in the process whatever little idealism is left in him. In fact, the heaviest work in most State education departments is that of transfers and promotions.

It is not being contended here that the formal system of education has become totally unworkable. Its efficiency at best is of the order of 33 per cent. In a country where the rate of literacy is around 30 per cent, the adoption of alteranate strategies in educational systems is very essential. The non-formal system of education needs to be further strengthened.

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5. **Lecturer in Botany**—One post (temporary).

Specialisation : Plant Taxonomy or Cytology, Genetics and Plant Breeding.

6. **Lecturer in Law (for Law Deptt.).** Few posts (Whole-time).

7. **Lecturer in Law (for Law Deptt.)** Few posts (part-time).

Scale of Pay

Reader : Rs. 1200-50-1300-60-1900/-.
Lecturer : Rs. 700-40-1100-50-1600/-.
Lecturer in Law
(Whole-time)—Rs. 700-40-1100-50-1600/-.

Lecturer in Law
(Part-Time) Rs. 700/- p.m. (fixed).

All posts carry usual allowances admissible under the University rules in force from time to time.

Essential qualification

Reader : Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years' experience of teaching and/or research provided that atleast three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

Lecturer : (a) A Doctor's degree or research work of an equally high standard, and (b) consistently good academic record with 1st or high second class (B in the seven point scale) Master's degree in a relevant subject or an equivalent degree of a foreign University. Having regard to the need for developing inter disciplinary programmes, the degrees in (a) and (b) above may be in relevant subject.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M. Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research Laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Candidates for being eligible for requirement to the posts of Lecturers must have a first or high Second Class (B in the seven point scale) at the Master's level and for determining consistently good record, average of 50%-55% may be expected at the two examinations prior to the Master's examination.

Lecturer in Law : (Whole-time and Part-time) : The candidates must have consistently good academic record with Master's degree in Law. While considering the relative merits of the candidates, the previous academic career, experience in teaching of law classes, research publication or experience (if any) shall be duly considered.

Preference shall be given to those candidates who can teach in Assamese.

Applications in plain paper in quadruplicate giving full bio-data including (1) Name in full (in block letters), (2) Father's name, (3) Date of birth by the christian era, (4) (a) Permanent residence and address (in full) (b) Present address (in full), (5) Present occupation if any and name of employer, (6) Present salary drawn (if any), (7) Detailed academic career with marksheets and subjects studied (including Honours) in degree and post-graduate courses from Matriculation/Higher Secondary/High School Leaving Certificate Examination onwards and copies/reprints of research contributions, (8) Name and address of two referees not related to candidate together with an application fee of Rs. 10 (ten) (Rs. 7-50 in case of S.C./S.T. candidates) by CROSSED INDIAN POSTAL ORDER drawn in favour of the Registrar, Gauhati University payable at the Gauhati-781014 post office should be sent in an inner sealed cover superscribed application for the post of (name of post applied for) Advertisement No. 1 of 1981 enclosed in an outer sealed cover addressed to the Registrar, Gauhati University, Gauhati-781014 to reach him not later than **30th January, 1981.**

The number of this advertisement and name of the post applied for must be referred to in the application.

Persons in employment should apply through proper cannel or with a no objection certificate from the present employer.

The University has accepted the principle of reservation of posts for Scheduled tribe and Scheduled caste candidates according to the norms of the State Govt. Candidates should submit necessary certificate from the Dy. Commissioner/District Magistrate if they belong to Scheduled Caste or Scheduled Tribe.

Candidates will be required to appear at an interview if and when called for.

Canvassing directly or indirectly will be a disqualification.

M.C. Bhuyan
REGISTRAR

UNIVERSITY OF RAJASTHAN

JAIPUR

Advertisement No. 29/80

Applications, are invited (through proper channel in case of those who are already in employment to reach this office on or before **Saturday the 31st January, 1981** in the prescribed form available from the Registrar's Office on pre-payment of Rs. 4/- (Rs. 3/- extra in case required by post) for the under mantioned posts:

1. **Professors**

In the scale of Rs. 1500-60-1800-100-2000-125/2-2500. Tagore Professor in History and Indian Culture-1, Professor in History-1, Chemistry-1, Mathematics-1, Jain Studies-1, Business Administration-1, Physics (Solid State Physics)-1, Botany-1, Mathematics (Intermediate Area between Physics and Mathematics especially Mathematical Foundations of Field Theory)-1, Social Science Research Methodology (Concurrent to any Social Science Deptt. and Social Science Research Centre-1, Sufism-1 and Economics-1.

2. **Readers**

In the scale of Rs. 1200-50-1300-60-1800. Law-1, Political Science-1, Sociology-2. Economics-1, Dramatics-1, Mathematics-1, History-1, Public Administration-1 and Education-1.

3. **Lecturers**

In the scale of Rs. 700-40-1100-50-1600. Botany-1, Home Science-2, Mathematics-1, English-3, Accountancy & Business Statistics-3, Journalism-2, Physics-4, Economics-5, History-6, Public Administration-2, Dramatics-3, Business Administration-7, Geology-2, Education-10 (one each in Political Science, History, Social Studies, Hindi, English, Sanskrit, Economics, Commerce, Biology and Mathematics), South Asia Studies Centre-1 & Zoology-2.

4. **Case Analyst**

1 in the scale of Rs. 700-40-900-EB-40-1100-50-1300.

5. **Research Associates**

In the grade of Rs. 700-40-900-EB-40-1100-50-1300. Economics-1, History-3, Sociology-1, South Asian Studies Centre-2, Sufism-2, and for Rajasthan Studies Centre-2.

6. **For University Leadership Project in Political Science;** (Temporary but likely to be made permanent)
   - (i) Reader: 1 in the grade of Rs. 1200-50-1300-60-1900.
   - (ii) Lecturer (Translation); 1 in the grade of Rs. 700-40-1100-50-1600.

7. **For University Service and Instrumentation Centre :** (Temporary but likely to be made permanent)
   - (i) Senior Scientific Officer-1, in the grade of Rs. 1100-50-1600.
   - (ii) Scientific Officer-2, in the grade of Rs. 700-40-900-EB-40-1100-50-1300.

The details of qualifications etc. may be obtained along with the prescribed application form or separately as the candidate may desire. Benefits of Provident Fund, D.A. and other allowances admissible as per rules of the University. Candidates desiring to apply for more than one post must send **separate** application for each post. Candidates will be called for interview at their own expense. Incomplete applications shall be rejected without making any reference.

Persons who have already applied in response to University Advertisement Nos. 2/80, 5/80, 7/80 and 9/80 need not apply **afresh** except for the posts of **Readers**; Mathematics-1, History-1, Public Admn-1, Education 1, and **Lecturers**; Geology-2, and Education-10. They should, however, intimate to the University that they are still desirous to be considered for the post applied for on the basis of their earlier application sent in response to the aforesaid advertisements. They may also send the particulars of their additional qualifications and experience etc. acquired since then on plain paper by **31st January, 1981**.

The University reserves the right to alter the number of posts in any cadre or subject. Higher start may be given to deserving candidates. Selected candidates are liable to be posted in any unit of the University.

Persons who resorted to unfair means at any examination and were punished therefor OR were convicted by a Court of law for any offence involving moral turpitude, are not eligible to apply. **Retired persons also need not apply.**

The University reserves the right to consider persons who may not have applied, particularly for the post of Professors.

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY : DELHI

Hauz Khas, New Delhi-110016

Advertisement No. 2/81

Applications are invited for the following posts in the Offshore Structures Research Cell :

ASSISTANT PROFESSOR (Scale Rs. 1200-1900) **Qualifications** Good academic record with Ph.D./equivalent published research work or design/development work of a high order in Offshore Structural Engineering. About 5 years research/teaching experience in structures. **OR** Good academic record with about 7 years recognised work in industry/professional field which should include innovation and/or research and development.

LECTURER (Scale Rs. 700-1600) **Qualifications** Master's degree in structural engineering/Stress analysis/Structural dynamics with consistently good academic record. One year's professional experience outside academic/research Institutions in the field of Offshore Structures/stress analysis by computer. Experience relaxable on condition of being obtained within 5 years.

Application forms and detailed information can be had from Assistant Registrar (Establishment I) by sending self-addressed, stamped (75 paise) envelope. Last date of receipt of completed application forms—**31st January, 1981 (14th Feb., 1981 for candidates abroad)**

Our Recent Publications

—Three Aspects of University Education	Rs. 50.00
—Bibliography of Doctoral Dissertations	
Natural & Applied Sciences	Rs. 125.00
Social Sciences & Humanities	Rs. 90.00
—Sports Management in Universities	Rs. 30.00
—Handbook of Medical Education	Rs. 12.00

Address Enquiries to :

ASSOCIATION OF INDIAN UNIVERSITIES
Deen Dayal Upadhyaya Marg,
New Delhi-110002.

GUJARAT AGRICULTURAL UNIVERSITY

SARDAR KRISHINAGAR, DANTIWADA

WANTS

Professors/Associate Professors/ Asstt. Professors in the disciplines of **(i) Bio-Chemistry (ii) Home-Economics, (iii) Nutrition** in the scale of Rs. (i) 1500-2500 (ii) 1200-1900 (iii) 700-1600 Respectively.

Application forms and details regarding qualifications, experience etc. required for the above posts can be had from the Registrar, Gujarat Agri. University, Sardar Krishinagar-385506, Dantiwada Dist. Banas Kantha on cash payment of Rs. 2/- or by sending crossed Indian postal order of equal amount issued in favour of chief account officer, Gujarat Agri. University along with self addressed envelope (23 cm x 11 cm) affixed with 80 paise postage stamps.

The candidates already in the service of this University may apply through proper channel on plain paper with six copies of bio data. All candidates called for interview will have to attend the same at their cost.

The last date for receiving application with six copies of bio-data through proper channel, complete in all respect is **31st January, 1981**.

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY

KANPUR

Advertisement No. 40/80

Applications are invited for one post of Deputy Registrar and two posts of Assistant Registrar in the scale of pay of Rs. 1100-50-1600 and Rs. 700-40-900-EB-40-1100-50-1300 respectively at this Institute. **Out of these posts one post of Assistant Registrar is reserved for Scheduled Caste/Scheduled Tribe candidate.**

Qualifications and Experience

Deputy Registrar

Essential

(1) At least High Second Class Degree in Arts, Science, Commerce, Engineering, Technology or Business Administration.

(2) Considerable administrative experience (12 years or more) in a position under Government University/large educational Institution or business organization of repute.

(3) Must have experience in the conduct of examinations/dealing with administrative procedures/Recruitment etc.

(4) Experience in handling agenda, minutes and procedure of meetings.

Desirable

(5) Capacity to develop corporate life within residential institutions and should have vide sympathy with students.

Assistant Registrar

Essential

(1) Good degree in Arts, Science, Commerce or Business Management.

(2) At least 10 years' experience in a responsible position under Government/University or in a large Educational Institution or business organization of repute.

(3) Must have good knowledge of procedure of general administration or accounting of cash and other transactions preferably both and be able to draft reports and minutes of conferences.

Desirable

(4) Experience of supervision of examination work, Assessment Personnel Recruitment/service rules, student welfare work, proved capacity to understand students and their problems.

The requirement of experience may be relaxed in case of candidates with excellent academic record and/or training in management.

Posts are permanent and carry retirement benefits in the shape of CPF Scheme or CPF-cum-Gratuity Scheme or GPF-cum-Pension-cum-Gratuity Scheme as may be opted according to rules. The age of retirement is 60 years. During the first year, the appointment will be on probation. Besides pay, posts carry allowances according to the Institute rules, which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare from the place of duty to Kanpur and back by the shortest route.

Applications must be made on prescribed form obtainable free of charge from the Assistant Registrar (Rect. & Asmt.), Room No. 483, Recruitment Section, Faculty Building of the Institute by sending a self addressed unstamped envelope of 25 cm x 10 cm size. Application should be accompanied by a crossed Indian Postal Order for Rs. 7.50 (Rs. 1.87 for SC/ST candidates).

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016 (India) on or before **January 31, 1981**.

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

Jawaharlal Nehru Awards for Outstanding Post-graduate Research in Agriculture-1981

The Indian Council of Agricultural Research invites applications from post-graduate students who have obtained their Ph. D. degree during the year 1980 in the fields of agriture/animal sciences (including fisheries) and home science for "Jawaharlal Nehru Award for Outstanding Post-graduate Research in Agriculture 1981". There will be ten prizes of Rs. 5,000/- each for outstanding research work of the following nature:

"Which may have bearing on finding a solution to any important national problem in the field of Agriculture, which is likely to have an impact on increasing the production or improving the quality of any important crop for human nutrition or animal productivity or increasing the technological efficiency of any process of economic importance connected with agriculture".

Candidates shall be required to submit their applications with the synopsis indicating precisely and in concise terms the work they have done. The candidates shall also be required to submit to the Council a copy of the thesis submitted by them for the award of the doctoral degree, through the guide under whom the work was done, who may state the extent to which the work is the candidate's own contribution. The certificate awarded to the candidate for Ph.D. degree may also be sent. There is no prescribed proforma for applying for this award. Each candidate will be judged on the basis of the originality and the applied value of the investigations as revealed in the thesis submitted by him. In all matters relating to the award the decision of the Council shall be final and no correspondence on this account will be entertained.

Applications alongwith six copies of synopsis, one copy of thesis and six copies of bio-data with complete address for correspondence with telegraphic address, if possible, should be forwarded to Shri Rup Ram, Additional Secretary, Indian Council of Agricultural Research, Krishi Bhavan, New Delhi, through the head of the Institute from which the candidate obtained his doctorate degree so as to reach him not later than **31st March, 1981**. The award winning thesis will be retained by the Council for record. In case the application is not accompanied by a copy of thesis and the required number of synopsis and biodata, the application is liable to be rejected at the screening stage.

UTKAL UNIVERSITY

VANIVIHAR, BHUBANESWAR-4

Advertisement

No. Estt. I/930/C/32655/80

Dated 24-12-1980

Corrigendum to Advertisement No. Estt. I/930/C/30448/80

Dated 1-12-1980

Insert the words "State Bank of India Chair" between the words "Of" and "Professor" occurring in the third line of the advertisement.

REGISTRAR

UNIVERSITY NEWS, JANUARY 15, 1981. Regd. No. R.N. 7180/62 Postal Regd. No. D(C)-534

CSIR Publications

Gnetum by P. Maheshwari & Vimla Vasil	Rs. 20.00
Aquatic Angiosperms by K. Subramanyam	Rs. 20.00
Indian Fossil Pteridophytes by K.R. Surange	Rs. 23.00
The Flora of Delhi by J.K. Maheshwari	Rs. 28.00
Proteaceae by C. Venkata Rao	Rs. 34.00
Pinus by P. Maheshwari & R.N. Konar	Rs. 30.00
Loranthaceae by B.M. Johri & S.P. Bhatnagar	Rs. 32.00
Abies and Picea by K.A. Chowdhury	Rs. 14.00
A Dictionary of the Flowering Plants in by H. Santapau & A.N. Henry India	Rs. 22.00
Herbaceous Flora of Dehra Dun by C.R. Babu	Rs. 144.00
Indian Thysanoptera by T.N. Ananthakrishnan	Rs 26.00
The Millipede Thyropygus by G. Krishnan	Rs. 12.00
Indian Sardines by R.V. Nair	Rs. 22.00
Indian Technologies Developed by CSIR Labs	Rs. 32.00
Drug Addiction with Special Reference to India by R.N. Chopra & I.C. Chopra	Rs. 12.00
Glossary of Indian Medicinal Plants by R.N. Chopra, S.L. Nayar & I.C. Chopra	Rs. 35.00
Supplement to Glossary of Indian Medicinal Plants by R.N. Chopra, I.C. Chopra & B.S. Varma	Rs. 18.00
Evolution of Life by M.S. Randhawa, A K. Dey & Jagjit Singh & Vishnu Mittre	Rs. 22.50
Kinetics of Electrode Processes and Null Points of Metals by L.I. Antropov	Rs. 2.50
Collected Scientific Papers of Meghnad Saha	Rs. 30.00
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Research & Development Management by Indra Dev	Rs. 25.00
A Dictionary of Generic and Specific Names of Plants and Animals Useful to man	Rs. 30.00
Rural Development and Technology—A Status Report-cum-Bibliography by P.R. Bose & V.N. Vashist	Rs. 100.00

Wealth of India : An encyclopaedia of the economic and industrial resources of India issued in two series, viz. (i) Raw Materials in eleven volumes and (ii) Industrial Products in nine parts. Free brochure available.

Packing & Postage extra.

Please contact :

Sales & Distribution Officer
Publications & Information Directorate, CSIR
Hillside Road, New Delhi-110012
GRAM : PUBLIFORM PHONE : 586301

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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH FEBRUARY 1, 1981

Information Servic
2 9 MAY 1
C.F.T.R.I., MYSO

The President, Shri N. Sanjiva Reddy, laying the foundation stone of the Institute of Sanskrit and Indological Studies at the Kurukshetra University campus.

CLASSIFIED ADVERTISEMENTS

PUNJABI UNIVERSITY

PATIALA

Advertisement No. 51/PRO/EStt/81

Applications are invited for the following posts :

1. **Professor in Punjabi**

Rs. 1500-60-1800-100-2000-125/2-2500)

Qualifications

An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

2. **Lecturer in Political Science**

(Grade Rs. 700-40-1100-50-1600)

Qualifications

(a) A Doctors' degree or research work of an equally high standard in the relevant subject, and

(b) Consistently good academic record with first or high second class (B in the seven point scale) Masters' degree in a relevant subject or an equivalent degree of a foreign University.

(c) Qualifications prescribed in (b) above are relaxable in case the research work of a candidate as evident either from his thesis or from his published work is of a very high standard. If a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing consistently good academic record (Weightage being given to M. Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctors' degree or give evidence of research work of equivalent high standard within five years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements.

Specialisation

(1) Modern Political Analysis.
(2) Contemporary Political Thought
(3) International Politics.

Note

Candidates for teaching posts should possess working knowledge of Punjabi upto Punjabi Praveshka standard. Persons from outside Punjab could however be considered for appointment but they will be required to give an undertaking in writing that they will acquire the requisite qualifications in Punjabi within a period of two years.

3. **Foreman (University Press)**

(Rs. 300-20-500)

Qualifications

Graduate from a recognised University and Diploma in Printing from a Government/recognised institution with 8 years' experience in a Govt./well reputed press as Supervisor.

4. **Computer (University Press)**

(Rs. 160-10-280/15-400)

Qualifications

Matric with Diploma in Printing & Technology with one year experience in estimating and planning in a reputed printing press.

OR

Matric with 5 years experience in estimating & Planning in a reputed printing press.

5. **Salesman (Publication Bureau)**

(Rs. 400-10-450/15-525/15-600)

Qualifications

1. Matric.
2. Three years experience in a publishing house of repute or Book Seller as Salesman and Accounts.
3. Selected candidate will be required to execute a bond for Rs. 2000/- with sureties of two persons agreeable to the University.

General

Higher start within the grade admissible depending upon the ability and experience of the candidate. House rent and Dearness Allowance, Provident Fund and Medical facilities according to the University rules.

Applications complete in all respects on the prescribed form accompanied by a crossed Postal Order worth Rs. 5/- (Rs. 2/- for candidates belonging to Scheduled Caste/Tribes and Backward Classes) drawn in favour of the Registrar, Punjabi University, Patiala, should reach the University by **13th February 1981**. The forms can be had from the Production and Sales Officer, Publication Bureau, Punjabi University, Patiala, on payment of Re. 1/- by sending a crossed Indian Postal Order drawn in favour of the Registrar, Punjabi University, Patiala, alongwith a self addressed envelope of the size of 25 x 10 cms. stamped with 35 paise postage which should be superscribed at the Top in bold letters REQUEST FOR APPLICATION FORM FOR THE POST OF ——————————

Persons already in service should apply through proper channel. Government servants who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before the due date and regular applications through proper channel by **16 February 1981**.

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY

KANPUR

Advertisement No. 2/81

Applications are invited for two posts of Senior Scientific Officer I/Senior Scientific Officer II in Laser Laboratories, Department of Physics, and in Electron Paramagnetic Resonance Lab. of the Institute in the following pay scales :

Senior Scientific Officer I Rs. 1100-50-1600.

Senior Scientific Officer II Rs. 700-40-900-EB-40-1100-50-1300.

(i) **Senior Scientific Officer I/II**

One Post

Qualifications

For Senior Scientific Officer I

Ph. D. in Physics plus three years experience in Laser Sepctroscopy and/or Microwave Spectroscopy.

OR

M. Tech. in Electrical Engineering plus four years experience in Lasers and/or Microwaves.

For Senior Scientific Officer II

Ph. D. in Physics in the area of Microwave Spectroscopy or Laser Spectroscropy.

(ii) **Senior Scientific Officer I**

One post

Qualifications

Ph. D. in Physics plus three years experience in Electron Paramagnetic Resonance or related areas.

OR

M. Tech. in Electrical Engineering plus one year experiece in Scientific/Electronic Instrumentation or Lasers/Microwaves.

The posts are contractual for a period of four years initially, extendable by a further period of two years at the end of which the candidate is eligible for consideration to a permanent post, and carry benefits in the shape of CPF Scheme. Besides pay, the posts carry allowances according to the Institute rules, which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare from the place of duty to Kanpur and back by the shortest route.

Applications from persons in India should be made on prescribed form obtainable free of charge from the Registrar of the Institute by sending a self-addressed unstamped envelope of 25 cm x 10 cm size. Applications should be accompanied by a crossed Indian Postal Order of Rs. 7.50 (Rs. 1.87 for SC/ST candidates).

Persons abroad may apply on plain paper along with a complete biodata and names of three referees from whom reference letters may be obtained.

Applicants who are employed in a Government/Semi-Government organisation or Institure, should send their applications through proper channel, else they will be required to produce a 'No Objection' certificate from their employers at the time of interview.

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016 (UP), India **on or before February 15, 1981.**

UNIVERSITY NEWS

VOL. XIX No. 3
FEBRUARY 1 1981

A Fortnightly Chronicle of Higher Education
Price 80 Paise

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Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor: ANJNI KUMAR

Instrumentation for Research

K. Periasamy*

Modern research in all branches of science relies heavily on instruments. The quality of research depends primarily on the quality and sophistication of the instruments available to the research worker. Instrumentation and research go hand in hand and one cannot advance without a corresponding advance in the other. The superior quality of research done in the United States, Germany and other European countries is more than anything else due to the host of instruments that their manufacturers are able to develop and perfect in the wake of the current needs that arise from the new advances made by the research workers. Examples of such instruments are the electron microscope, ultramicrotome, mass spectrometer, atomic absorption spectrometer, microdensitometer etc.

It goes without saying that studies which employ these instruments cannot be made if they are not available. The development and manufacture of the first workable model of any sophisticated instrument is slow and may take several years. After this, however, its improvement is rapid with regard to its applicability, efficiency, economy etc. on the basis of the knowledge gained in the manufacture and use of the initial one. Consequently, countries which do not develop such instruments by themselves cannot hope to raise their level of research by importing such instruments because by the time the instruments arrive and are put to use they become outmoded in comparison to the refinements made in them in the manufacturing countries. Furthermore, even the outmoded instruments imported at high cost cannot often be used properly because they cannot be repaired when they go out of order for want of knowledge of their mechanism or some small spare parts.

However, in no country is all research confined to sophisticated and recently developed instruments alone. For example, the electron microscope has not replaced the light microscope nor has the amino acid analyser replaced chromatographic techniques in any country. Sophisticated, new fields of research with new intricate and automatised instruments may strike the headlines and rightly so because they represent the foremost in the advancing frontier of scientific knowledge. Such advanced work, however, constitutes but a small percentage of the total research done in any country and the majority engage themselves in research with simpler and long established instruments and techniques, and such research is not belittled as inferior or unnecessary. (*Continued on page 73*)

P.G. Centre, Tiruchirapalli.

Role of Universities and Colleges in Continuing Education Programmes

D. Subba Rao*

The destiny of a nation lies on the shoulders of small men trying out big tasks (not too big) in their own small communities. Did not we not learn in our young days that little drops of rain make a big ocean. When we think of the role of the Universities and Colleges as producers of our intellectual and scientific manpower for our country, something is in stake for the next two decades. We who belong to the Universities and colleges have pride that we are the custodians of the knowledge through teaching and research and we generate the youth leadership in various walks of life. But if we ask, what is our contribution to the good of the community, for the uplift of the poor and weaker sections in and around us, what answer we can give? No doubt, the products turned out by our system work as scientists, administrators and so on. But is that all that we can do or achieve for our communities? Let us understand the dynamics of the society around us. Let me enumerate the amount of poverty and other problems that surround us.

Determining levels of poverty : Now let us have a quick survey of the factors or indices of poverty as enumerated in different studies. The people below poverty line are determined by the concept of economic poverty. The measurement of poverty is the concept of absolute income or expenditure inadequacy based on empirical analysis, which in turn is related to a nutritional norm of food energy and a certain minimum amount of non-food expenditure. A nutritional energy requirement of about 2250 calories per person per day is accepted as a reasonable norm applicable to Indian conditions. To draw the poverty cut off line, the minimum level of expenditure for getting 2250 calories per head has to be determined. This is determined on the basis of nutritional value of food consumption by different groups of people. You can well imagine how many people can spare at least one rupee per head in these days of rising prices. If there is a family of 5 members, how many families in our rural and urban side can afford the above nutritional status?

The calorie value of the food consumption is calculated as for the quantities of various items consumed by householders and the Aykroyd tables of nutritional value of Indian foods. The poverty line is drawn as per the above norms came to an expenditure group of Rs 3.00 to Rs. 3.50 indicating that all households with a per capita per day expenditure of less than Rs. 3.00 are poor. It may be Rs. 4 now as the prices of all commodities rose in the last one year.

A case study of a small town in Andhra Pradesh

The study by Dr. K.S. Krishna, Deputy Director, ICSSR Project, Department of Economics, Andhra University has revealed the following facts in regard to the nutritional status of the sample households in relation to income, expenditure and consumption pattern. (1) The estimate of protein intake for the households above the poverty line has come to 68.11 grams as compared with 35.82 for those below the line. (2) It is a matter of considerable interest to find that the calorie-protein ratio (Protein per 100 calories) is relatively stable; it varies between 2.27 and 2.61 for the households below the poverty line, and between 2.59 and 3.12 for those above the line. This implies that given the food habits and the energy and protein value of foods, protein intake will rise more or less proportionately when calorie intake rises. For the poor households, the problem of protein deficiency can be therefore regarded as essentially a problem of calorie deficiency. (3) The nutritional deficiency problem has an important demographic dimension and it has also to be partly tackled by reducing the fertility rate and high death rates of infants in poor households. Such studies in various parts of the country like Gorakhpur and similar other places in Uttar Pradesh, Madhya Pradesh, Bihar, Rajasthan, Gujarat, Orissa, Maharashtra will give us a complete picture of poverty in our Indian situation.

Quality of life as on index of backwardness

The Board of Statistics in the UNO proposed 9 characteristic elements for a standard of living index which in addition to other indices would allow an objective judgement of the socio-economic development of a community which in turn indicates the "Quality of life" in a community. They are 1. Public health, 2. Food and nutrition, 3. Education, 4. Employment and working conditions, 5. Housing, 6. Social security, 7. Clothing, 8. Leisure and recreation, 9. Human freedom.

If we take the above 9 factors into consideration, only 10% the people in India in the rich and upper middle class enjoy a better quality of life. Even if we take only public health, Food and Nutrition, Housing and Clothing and Education nearly 60% are denied. We have not achieved so far even 80% enrolment in primary education. Our central education minister was telling that by 1990 we hope to achieve 100% enrolment. If our plans succeed and if our administration and teachers are geared to it properly, we can achieve the target.

When we think of the problems of poverty, ignorance, disease and superstition and local loyal-

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ties and quarrels, how much work remains to be done in a vast country like ours. What should be the goals and strategies of continuing education for the next two decades keeping in mind the national goals and our international obligations.

The 32nd World Health Assembly met in Geneva for 3 weeks in May and endorsed the following statement: "Primary health care systems must make the best use of scare resources, facilities and skilled people and involve each community in its own health care. Joseph A. Califano Jr, the leader of American delegation to World Health Organisation speaking on the occasion has this to say: "The path to health for all by the year 2000 will be extraordinarily steep and difficult. There is no guarantee given the enormity of the obstacles, that we will surmount them. But let us try together. Certainly the risks of failure are far out weighed by the opportunities to bring to people everywhere greater freedom from persistent and debilitating scourges, disease and poverty, priceless opportunities to improve the health of every citizen of the world".

That is about the World scene in which we are participants. Coming to our country, our Prime Minister made her election plank to remove poverty at an early date. The Chief Ministers of various states are wedded to the same idea. Our next goal is to achieve 100% enrolment in education by 1990 at least.

Our Higher Educational system has added the new dimension of extension as the third most important dimension in addition to teaching and research. More than 20 Universities with the Departments of Adult and Continuing Education, Non-Formal Education and Community Service have made a mark in trying to develop extension programmes for a variety of clients in the last 5 to 10 years. Now our strategy has changed. "We no longer want to spend all our monies to the rich and middle class groups who sufficiently enjoyed our patronage. We should now move on to serve the oppressed, depressed and other weaker sections of the community."

It is not only the universities that should take up this challenge but the numerous affiliated colleges, autonomous colleges, Junior colleges, Sanskrit institutes, Oriental Learning Institutes, Post Graduate and Graduate Basic Training Institutes, Colleges of Education, Engineering, Medicine, Law, Commerce, Ayurveda, Fine Arts, should all come forward and take up the challenge in the next two decades. Now let us look into the strategies and models so that we can create an ongoing programme of continuing education.

Models and implementation strategies

Before we launch any good programme we should exercise sufficient thought for it and create a suitable model and draw action or implementation strategies. We should keep in mind certain basic assumptions when we draw such models and action strategies (a) sometimes the models are latent in the mind of the programmer or director or action strategist (b) sometimes the model is manifest, clearly spelt out, discussed and debated, modified to suit the local conditions. (c) there is no one model. It varies according to the set of circumstances that operate in a tribal area, rural area, urban area, hilly region, etc., (d) there can be different models for Universities, for colleges situated in different regions, (e) models vary depending upon the inputs both human and material resources available and the commitment of individuals or groups who want to work out the model (f) action strategies are dependent upon mobilisation of finance, men and materials and the region selected for action strategies. (g) finally the success of action strategies of continuing education programmes depends on the clients or groups chosen, their level of motivation and involvement, their achievement targets, levels of aspiration, socio-cultural climate, willingness of the local leaderships to allows things to change, the development of youth power, the continuous feeding of people with knowledge, skills and attitudinal directions, finally proper feed back and evaluation, revision of strategies and goals for renewed action.

The models I have taken are broad in scope and are amenable for change and modification. In the first model for Universities, where these are departments of Adult and Continuing Education already well established, they can take co-operation of sister departments in physical, natural sciences and social sciences. As a team, they can select one or two villages, make surrey of problems and needs of the area, identify the target groups and expose them to a series of continuing education programmes in areas like health, nutrition, agriculture, animal husbandry, mothercare, childcare, first aid, prevention of communicable diseases, cottage industries, marketing, social and political awareness, community dinners, youth and Mahila Mandal formation, non-formal education, etc.

(a) In the first year the basic and pressing problems which are within the easy reach of solution by University authorities or departments should be attempted, (b) In the second year after gaining confidence and creating a sense of well being and achievement in the clients, more programmes, should be attempted (3) In the third and fourth year of operation of continuing education programmes for different groups, like youth, Mahila Mandals, workers should be maximised. Here we can employ participatory research models which can give maximum results? The basic idea is to create self-reliance, confidence and vociferous groups to get their demands redressed by government agencies. (4) In the fifth year the University should gradually withdraw from the field of operations. (5) In the subsequent areas the trained manpower is continuously exposed both in the University campus and in other training establishments for latest knowledge and skills, developments in science plus general knowledge. In a way this will lead to community colleges or folk schools or rural institutes to broaden their understanding and to develop them as worthy citizens who can look after themselves.

(*Contd. on page* 75)

University System In The Federal Republic of Germany

J. N. Sharma*

The major pillar of the tertiary education system of the FRG are the academic universities including technical universities and teacher training institutions. Generally speaking all the universities and institutions of higher education in the Federal Republic of Germany are state institutions. There are no universities maintained by private organisation, foundation or religious communities. German universities have a long history. The FRG's oldest university at Heidelberg was founded in 1386. Several others have also celebrated their 500 year jubilees. But apart from these venerable institutions, there are also very young universities, more than 20 having been founded in he past 15 years. The important land mark in the development of scientific life in FRG has been the establishment of separate institutions for technological research and training, owing to the rapid growth of interest in the natural sciences and research. Some of these institutions were in the course of time recognised in the FRG as equivalent to that of the traditional universities and achieved the status of Techische Hochschule (Technical Universities). In addition to general universities and technical universities, the field of higher education today also includes several smaller institutions of higher education for certain branches of studies such as medical universities "Gesamthochschule" (Comprehensive Universities), "Paedagogische Hochschule" (Teacher Training Colleges) or 'Erziehungswissenschaftliche Hochschule" (Colleges of Education), Kunst Hochschule" (Colleges of Art), "Music Hochschule" (Colleges of Music) and "Fachhochschule" (Polytechnics). In the FRG there are at present :

36	Universities
7	Technical Universities
7	Specialist Institutes
10	Comprehensive Universities
19	Colleges of Education
27	Colleges of Art and Music
97	Polytechnics.

A relatively new type of tertiary colleges are the 'Fachhochschulen' (Specialised institutions for higher education) corresponding to the technical colleges of some other countries. They provide scientifically based education in numerous fields concluding in graduation and in most cases leading directly to employment. Graduates of Fachhochschulen can however also continue studying at academic universities. Comprehensive universities unite the functions of main universities, technical universities, colleges of education, polytechnics and to a limited extent of art colleges. It is only recently that university studies based on correspondence courses have been experimentally established in FRG. The Parliament of the State of North Rhien Westfelia approved the law establishing an open university in November 1974 and this University started functioning in Hagen in October 1975. This open university is meant to provide relief to other institution, not to replace them.

As mentioned erlier, all the universities in FRG are in the control of Laender (Federal States). The Federal Government controls only the General principles of universities system and contributes funds to the university construction. The universities have a large measure of autonomy in their own affairs. After several years of difficult negotiations between defferent states, the University Outline Law was provided on January 26, 1976 which contains general regulations for the guidance of the states. Thereafter each state has Laender (states) Universities Law within the framework of Federal University Outline Law, to regulate the task of a University, admission procedure, staffing, ortanisation and administration, planning, state recognition of institutions and qualifications etc. within their jurisdiction. Some universities have conventional Faculties with wide range of scientific disciplines. A more modern idea is the categorisation into many small departments 'Fachbereigch'. The Head of the traditional universities is the 'Rektor' elected for a period of one or two years from amongsts the faculty members. Since many universities now a days have attained large dimensions and require more attention from the Head, modern university consitution often provides for a 'President' who is appointed for several years (6-8 years) which is a full time job. President need not necessarily come from the ranks of academic staff. All members of the university are represented and having voting rights in most important representative bodies, "Konzil" (Council) "Senat" (Senate) and "Fachbereichsrat" (Council of Board of Studies). In those bodies which decide on affairs of direct relevance to scientific matters, the professors have a majority.

The basic requirement for admission to German universities is 'Abitures'—secondary school examination which is taken after 13 years of schooling. The Teacher Training Colleges are some time controlled by the universities and some time separately through the education department. There is no system of undergraduate or post-graduate studies in the Federal Republic of Germany. Studies at the academic universities culminate in 'Staatsexamen', 'Diplom' or a 'Doctorate'. All University courses range from 8 to 10 semesters. Students have perfect freedom to discontinue their studies at any stage and continue whenever they are again in a position to do so. Such freedom is not granted in Medicine and Engineering studies. Medium of instruction in all German educational institutions and universities is German. Admission of all foreign students is regulated through the office of Foreign Students Affairs 'Akademisches Auslandsamt'. Once the admission is granted to a foreign student he has to undergo a German language course and qualify in a written examination.

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The huge growth in the number of university students led to enrolment restriction which became necessary for many courses like Medicine and Engineering. Many applicants are not able to study at the university of their choice or at the intended time. All the universities therefore agreed on a joint action programme in November 1977 in order to open up educational and occupational opportunities to solve this restriction on university admissions. As a consequence of a ruling on 'numberus clauses, (restricted admissions) by the "Bundesverfassungsgericht" (Federal Constitutional Court), an agreement was reached whereby a central allocation of study places was standardised by the Zentralstelle fuer die verteilung von Studienplaetze—ZVS (Central Office of the Allocation of Study Places). The ZVS allocates seats at state recognised universities according to a fairly complex system. 8% of places for university admissions are reserved for foreigners.

In order to have proper coordination with variour German universities the Westdeutsche Rektorenkonferenz—WRK (West German Rectors Conference) was set up in 1949 which represents all the universities and institutions of higher education. It has its permanent office in Bonn with the executive board which consists of the Presidents and four Vice Presidents. The President is elected for a two year term and must himself be or have been a Rektor or President of a University. The purpose of WRK is to provide a permanent framework within which its member institutions can cooperate in solving problems of common interest in the fields of research, teaching, studies and self administration. Its decision take the form of recommendations. The WRK cooperate with the Federal and State ministries of Education, culture and scientific affairs in different states.

Some 900,000 students are enrolled at the German universities—more than 5 times as many as 20 years ago. 50,000 are foreigners.

No tuition fees are charged at the Federal Republic universities, Students or their parents must provide for their own maintenance But in order to provide certain equality of opportunity a Federal Education and Training Assistance Act (Bundesausbildungs foerderungsgesetz) was adopted in 1971. According to this if students or their parents are unable on their own to finance food, clothing, house rent or books etc., the state helps out. The amount of financial support given mainly depends on parents income. Today almost every second German student receives this kind of financial support from the Government.

Research goes in three big sectors in the FRG: universities, the non-university institutions and industry. Research by university teachers has a long tradition in this country. Public funds flow into research through the German Research Society (Deutsche Forschungsgemeinschaft) which is a self governing scientific organisation. In contrast to the DFG as a pure fund distributing organisation for scientific research, the Max Planck Society for the Advancement of Sciences (Max Planck Gesellschaft zur foerderung des Wissenschaften—MPG) runs 50 institutions of its own. Most of them do basic research in the natural sciences and many have for decades been world renowned.

A brief historical survey of the FRG shows that in 1945 when the 'Reich' collapsed, most of the institutions concerned with the research and/or teaching (universities, Government/industrial research establishments) had been destroyed. Within the next decade rebuilding of universities and newly founded research centres was taken again on a broad basis. After the 30s and early 40s—when a strongly centralised system impeded traditional 'academic freedom' and research in many ways—West Germany became a federation and school and university affairs became the responsibility of Laender (individual states). However, the states became more and more confident about the usefulness of educational, cultural and scientific affairs and they consequently set up a coordination organisation in 1948 namely the Staendigekonferenz des Kultusministers (KMK) Standing Conference of Ministers of Education and Culture Affairs. The universities felt that some kind of coordination was also needed and thus the West Deitsche Rektorenkonferenz (WRK)—West German Rektor's Conference was founded in 1949 as described earlier. It would thus be seen that there is full freedom to each state to adopt its own system of education and each university has full autonomy, there exist an element of coordination and maintaining uniform standard all over the country. ☐

Our 'Peripheral' Universities

Ninan Abraham*

According to the eminent education sociologist, Philip Altbach the universities of the Third World are without exception "peripheral" institutions in the international scene. At the centre are institutions like Oxford, Cambridge, Harvard and Paris which "give direction, provide models, produce research, and in general function as pinnacles of the academic system". The large majority of the universities of the world are thus "peripheral". They are the distributors of knowledge whereas the universities at the centre are the producers of knowledge.

In the Third World there are universities which are central in a smaller, national context and function even as regional centres, like the universities of Cairo, Delhi, Buenos Aires in Mexico. But even these occupy only a peripheral status in the university world as a whole.

One problem

It is difficult for Indian's universities to be at the centre, even to maintain a high level by the standards of the developed world. One problem is financial resources, though not the only one. A country like India can have either a few universities of high quality or a large number of institutions of rather low quality. China has apparently made a definite decision opting for quality rather than quantity. The total number of students in the universities and colleges of China is only a little over 10 lakhs whereas the corresponding figure for India is about 6 lakhs. China has to the very selections in its admissions to maintain this policy. In 1979 of the 47 lakhs who appeared in the national university entrance examinations only 2.75 lakhs, or one out of 17, were slelected. This ensures that the quality of higher education remains really high. Also, professors are well paid and the teacher-student ratio is very high—as high as 1:3 in some and 1:6 in general.

In India there has been a rapid increase in the number of institutions of higher education as well as of students since independence. In 1947 there were only 21 universities and 450 colleges with about 266,000 students in them. In 1976-77 there were 105 universities, 10 institutions deemed to be universities and 4569 colleges with 24.31 lakhs students.

Another way of looking at the problem is to compare the number of persons receiving higher education out of every 10,000 of the population. In India it is about 40, in Britain 100, in the USA 350 and in China only 10. It is also high from the point of view of the economy of India, which is not able to absorb all graduates, and considering that the nation is not in a position to meet the cost of quality education for such a number.

The choice would seem to be between quality and quantity. Either we can have a relatively small number in higher education as in China and give them an education of good quality or a relatively large number with rather low quality education.

The dilemma

A liberal democracy however cannot adopt the strict measures of manpower planning of a Marxist state. The constraints of the economy may be pressing but the aspirations of the people cannot be swept aside. While therefore it would not be right to sacrifice quality, it would not be right also to deny the opportunities of higher education to the awakening people. The challenge before the nation is to evolve systems and structures by which both objectives can be achieved.

This will mean that there will have to be a diversity of institutions. Not all can be of the same standard because of the limitations of finance and personnel and because of differences in the intellectual level of students. The solution can be to develop selected institutions. Further it is the institutions of general education as against those for professional education which need special attention for the quality of work in professional institutions is by and large good.

Vast majority

Moreover the vast majority of students in higher education go in for general education in arts, science and commerce. Of the total of 24.31 lakhs students in the universities in 1966-77, arts, science and commerce accounted for 19.52 lakhs and the number in engineering, medicine, agriculture, veterinary science, education and law was only 4.79 lakhs. The bulk of the students in general eduction are in the affiliated colleges. There were 19.20 lakhs students at the graduate level and 1.17 lakhs at the postgraduate level in the affiliated colleges, whereas the corresponding figures for the university teaching departments were only 1.28 lakhs and 97,124. In other words 89.7% of the gradudate students and 85.1% of the students at all levels were in the affiliated colleges.

Among the recommendations made by the Kothari Commission for raising the quality of higher education there was one to select six universities to be 'major universities' and another for the grant of autonomy to a certain number of affiliated colleges. The recommendation regarding major universities has not been accepted or implemented. The recommendation regarding autonomous colleges has been approved by the University

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Grants Commission and commended to the universities. But so far only two universities in the whole country have acted on the recommendation.

The objection can be raised that spending public money to selected institutions would be showing favouritism. But it is not for a particular class of citizens or group of individuals that these facilities will be provided. There will be no more favouritism involved than in not allowing all those who appear at I.I.T. entrance examinations or premedical tests to join the institutes of technology or the medical colleges. Institutions with provision for quality education will be open to all and entry to them will be by competition and on merits. China out of its 636 institutions of higher education treats only 89 as key institutions. A key institution may get as much as twenty times the grant that other institutions receive and administratively many of the key institutions are responsible directly to the Ministry of Education at the Centre or other ministries.

Chinese view

The Chinese Education Minister told a team of visitors that the key university was a matter of expediency rather than of principle, a recognition that in China resources of money, staff and equipment are severely limited. Key universities are models that other universities would follow when the state of the nation's economy allowed. Whether the institutions of excellence thus envisaged will breed unhealthy elitism or men specially equipped and committed to genuine service of the people will depend upon the orientation to the needs of society and the awareness of their social obligation which the institutions are able to impart to those who go to them.

(Courtesy: *The National Herald*)

Instrumentation for Research

(*Continued from page 67*)

Therefore countries like India which are not able to develop and manufacture sophisticated instruments for research, may well concentrate first on reaching perfection and excellence in the manufacture of simpler, long established instruments in order to enable their scientists to reach a high standard in studies that employ such instruments. It is, however, deplorable that while frantic attempts are being made to copy many sophisticated instruments, no advance seems to be made in reaching perfection and high quality in the manufacture of simple, long established instruments. The reason for this perhaps is that sophisticated instruments are commercially more profitable and may be easily sold irrespective of their stand and because it is prestigious for a laboratory to possess them.

The compound light microscope is an important and major tool of research for the biologists and geologists all over the world. Standard research microscopes of high quality have been developed more than 50 years ago but India is yet to manufacture research microscopes of standard quality. It is really surprising that India is so poor in optics and that lenses, prisms, filters, gratings and such other simple items are still imported. No microscope with plane field objectives and compensating occulars, essential for microphotography is yet made in India. In fact none of the manufcturers and dealers seem to know what planachromat and compensating occular mean. Nevertheless, it is not possible to import such microscopes because "microscopes" are made in India.

The rotary microtome is another research tool widely used by biologists. The import of this is not allowed because it is manufactured in India but all the Indian stuff is not only substandard in their quality but also lack durability. The camera laucida is a simple devise used to make exact drawing of structures seen under the microscope. No good camera lucida embodying the principles that are needed to be followed in its construction is available in India. What are available are like toy models without filters to control light, without mirror inclination angle marking, and with too small a mirror and too short a stem to be of real use.

The policy of the government to allow the import of parts without allowing the complete instruments has simply enabled the foreign countries to sell substandard articles to India. Furthermore, our manufacturers many of whom are uneducated, do not know anything about quality nor do they care to know when they have the protection from competition of quality instruments.

To give one example, almost all the Indian assembled binocular research microscopes with imported binocular heads I have seen have imperfect prism alignment. The lateral and the more undesirable vertical shift between the two images that result from the nonalignment of the prisms, make the superimposition of the two images either impossible or possible only with great eye strain. When this defect was pointed out to some manufacturers, they were surprised that such defect can exist in an imported binocular head and revealed their complete ignorance of its construction use and quality. Furthermore they said that nobody has pointed out this defect to them.

[Courtesy: *The Hindu*]

CONVOCATION

Role of women in economic and social development

We live in an age where the concepts of women's liberation and equality of sexes have been accepted in varying degrees. But many facets of women's role in the socio-economic and cultural development are not fully understood. Social and economic changes, we all agree, are dependent substantially on education. Most social changes are restrained by the dominant factor of cultural inertia of societies and education is the best way to overcome this inertia. It is only through education that people can be enlightened and consequently persuaded to abandon the irrelevant old and accept the urgent new. While on the organic relationship between socio-economic changes and education one cannot help remembering Prof. Gunnar Myrdal, the noted Swedish economist and Nobel Prize winner, who was one of the first to outline the importance of education in the process of development in his now famous book "Asian Drama; An Enquiry into Poverty of Nations".

One can try initially to define education. What is Education? The term is believed to be derived from the word "educare" which refers to the bringing up of children, both physically and mentally. Deriving from this origin, education is meant to represent a group process by which culture is transmitted from generation to generation. In primitive societies this process of transmission of culture was primarily the responsibility of the family. In modern day societies such as ours, which are characterised by a high degree of functional specialisation, different institutions perform separate and distinct functions. While the super-structure of formal education may be available in such dedicated institutions, the infrastructure still continues to be informal education. This informal education begins with the process of socialisation, wherein any child born in a society is gradually introduced into social life. The process of socialisation primarily consists of acquiring behaviour and attitude patterns, learning habits and values which prepare an individual to live in a complex society. The process of socialisation is essentially an inter-active process with the natural and the physical environment and the people that comprise the social circle. This implies that direct personal contacts with other individuals as well as with the physical environment and mass media become a learning experience. The most important intermediary in this process of socialisation is the family and within it, the parents, especially the mother. The whole development of a child's personality depends upon the values and behaviour patterns which the parents impart to their offspring. The role of the mother in imparting the basic informal education is especially great in a society such as ours, where the number of working women is still small and women bear the major burden of rearing of children. In other words, a mother becomes the most important individual in the development of the child.

The role of the mother in the development of the child is not confined to imparting basic of education. Indeed, it is a total responsibility. Three factors, namely, health, nutrition and personality development are inter-active ingredients in the healthy growth and development of the child. Social psychologists, gynaecologists and health care specialists have evidenced that health, nutrition and personality development begin not after birth but right from the day the child is conceived. In this sense mothers have a moral and social responsibility to ensure minimum levels of nutrition, both after and before the birth of the child. The responsibility is determined by the level of awareness, education, habits, attitudes and values which the mother herself has imbibed, and is able to impart to her children.

In sum, women, through child bearing and rearing, play a decisive role in one of the key elements of any economy, namely, the labour force and the training of fertile minds. But that is not where a women's participation in the process of development ends; it only begins there. Take, for example, the home of a nuclear family. It is said that charity begins at home. In assessing the role of women in society, the time has come to rephrase this adage as "socio-economic change or development begins at home". The nuclear family, from the beginning of civilisation, has been the smallest economic unit, both in terms of consumption and production. In primitive societies the productive forces were so organised as to have an equal share between men and women. Over the years, however, the emphasis seems to have shifted on the productive capacity of man.

There is evidence that in the early days of civilisation, women were important functionaries in the productive work force both within and outside the home. The growth of civilisation with the advent of technology has greatly eroded their functional importance in two ways. Firstly, the necessary articles of consumption such as pottery, tools and textiles which traditionally belong to the home industry, have begun to be produced on a mass scale through the use of technology. Secondly, the changing styles of living have burdened women with increasing family responsibilities that tend to confine them to their homes. Despite these developments, women do contribute both to productive work within and outside the home but their economic contribution is rarely measured. It is unfortunate that the importance of the home and hence of women in the socio-economic development of our country has been underestimated.

As the basic unit of production and consumption, economising on consumption and reducing wastage in our own kitchens and stores becomes significant when we see the immense losses that take place even in ordinary homes. Proper storage facilities, planning of food intake to reduce wastage and economising on the source of energy be it oil, firewood, coal or gas, are only a few examples that show their importance from the national point of view. The economy of the home is an integral, if not basic, part of the macro-economic system of any society. And yet, this is an area which is most often neglected and is almost completely overlooked in the analysis of economic transactions. Most economists assume that the housewife makes no contribution to the productive output of a society.

One of the major reasons why the role of women in economic and social development has not been properly assessed is because women's economic activities are often overlooked by census and other statistical data. Work that is not performed for wages, either on the farm or at home, is not reckoned as work in the conventional economic system. Consequently, the majority of women in developing countries who work, but not for wages, are often categorised as housewives rather than as members of the labour force. Out of 306 million women in India as in 1978 only 89 million or 29% are officially enumerated as forming part of the Indian labour force. As against this, of the 328 million men, 184 million or 56% were considered part of the labour force. Assuming parity in the proportion of the work force to the total population, the contribution to the economy of 89 million women has been overlooked. The purpose of bringing up these statistics is to drive home the point that the economic contribution of women has neither been fully understood nor fully appreciated by the development planners and economists. No serious effort has been made by statisticians or demographers to measure the value of women's economic activities at home or on the farm. At the same time, micro-level studies in various regions and sectors of the economy, both among the urban poor and the rural poor, have indicated that women are indispensable in certain sectors of the economy.

Although there have been proposals from economists such as Easter Boserup and others to redefine the Gross National Product to include women's household work, so that economic indicators such as GNP can be used more effectively to assess developmental goals, monetary values are yet to be assigned to such productive labour as those of the housewives which does not enter the cash economy. Consequently, plannes and development economists continue to formulate policies which ignore utilisation of women's economic resources, thus excluding them altogether in the formulation of developmental policies. Under-utilisation of human resources continues to hinder the progress of most developing countries and in this the underutilisation of the productive women force probably ranks first.

(Excerpts from the convocation address delivered by Dr. H.N. Sethna, Chairman, Atomic Energy Commission at SNDT Women's University at Bombay).

Role of Universities and Colleges in Continuing Education Programmes

(Continued from page 69)

(b) The second model is also similar to the first model, with this difference. Where there are no adult education departments, one or two departments in the University like social work, Applied Economics, Economics, Applied Physics or Physics, Geography or Civil Engineering will take up the simple programmes in the first year and gradually build up in subsequent years and involve other departments in the university and slowly withdraw after creating proper atmosphere.

(c) In the third model for colleges, the Principal as the key figure, with the help of service minded departments will take up the programmes and develop it in the same way as in the model enumerated above.

(d) There can be another model where the University or college instead of taking initiative itself, joins with the ongoing programmes of rural development or tribal development in a nearby block and helps the government agencies with various inputs.

(e) In yet another model, the University or college writes to youth clubs, village elders like sarpanch or grampradhan or community leader and whoever comes forward offers their help, gives knowledges, trains in skills and trains local leadership for taking up programmes for weaker sections.

These are the various strategies that can be discussed in the seminar. Let us all work together to create a proper atmosphere in our universities and communities around us and create a New India free from exploitation in the next two decades. ☐

CAMPUS NEWS

Jammu organises workshop on question paper design & evaluation techniques

The College Development Council of the University of Jammu organised a workshop on question paper design and evaluation techniques. As many as 60 participants including resource persons, specialists and senior academics from colleges affiliated to the University of Jammu attended the workshop.

In his inaugural address, Professor Satya Bhushan, Vice-Chancellor, University of Jammu, highlighted the imperative need of complete and radical overhaul of the evaluation system. He averred that improvement in evaluation, in its totality, is inextricably linked with the precise formulation of apropriate education objectives, curriculum taught through dynamic methods and meaningfully learnt by the students by active participation rather than through passive listening. Teaching, he said, must not be confined to narrow grooves. The Vice-Chancellor emphasised that classroom culture is not a single-point entry but a two-way traffic between the teacher and the taught. He desired that the memory-based education must be given a new slant of creative education for which he advocated that 10 to 15% of a syllabus be left to the discretion of the teacher concerned to enable him to incorporate the learning material of immediate environmental relevance. He impressed on the participants that since man is not a single-ability entity but has various ability bands, multiple tools of evaluation be sought to assess the accomplishment and the personality development correlates of an individual.

Earlier Shri K.K. Gupta, Director, College Development, while welcoming the distinguished guests and participants spelt out the role and developmental programmes of the College Development Council, gave the raison d' etre of the present workshop and posed concrete issues, which he desired the participants to sort out in down-to-the-earth-realistic manner so that action-points for subsequent implementation may emerge.

Professor V.R. Taneja, the Director of the workshop, in his thanks-giving exhorted the participants that education being in crucible, men with resilience of mind, highest degree of integrity, determination of will, having pronounced sense of accountability and "commitment" are required to implement the innovative programmes, recently embarked upon by the University of Jammu. In discharging this high task, Professor Taneja said that, inter alia, the most vital and crucial is the convincibility and credibility of the consumers of the learning, that is, the students whose motivation and creativity has not only to be aroused and sustained but is also to be perpetuated. He urged the participants to do crystal-gazing on the focal points like attributes of good question-paper, the proportionate weightage given to essay-type and short-answer-type questions, the pattern of choice, the rationale for moderation and the effective components of the gamut of internal assessment.

After considerable discussions, the workshop made the following recommendations:

(1) For improving the entire spectrum of evaluation process, the workshop attaches the highest importance and top priority to the redesigning of the question-paper on scientific lines as it is increasingly realised that the banes of the currently set question-papers are legion-unrepresentative sample of constant-coverage, overlapping of questions, concentration on some portions of the syllabus, vague and ambiguous language, capable of being interpreted differently by teachers, students and examiners etc. etc.

It is, therefore, underlined that the meaningfulness, functionalism and validity of the question-paper be improved. It is felt that the convention of not repeating the questions set in the preceding years be exploded as it is academically unsound and encourages the practice of restrictive study on the part of the students, thus leaving them high and dry so far as optimal quantum of knowledge is concerned. At the same time this convention places great constraint on the paper-setter.

(2) It is accepted that in a scientifically designed question-paper, the questions should have :

(a) proper sample of the contents of knowledge, which should be reflected in the question-paper in an extensive as well as intensive manner;

(b) discriminating power, so that they may help ranking of candidates in order of merit or classifying them into several groups of superior or inferior ability;

(c) reasonable difficulty so that there may not be very high or very low scores on the items;

(d) reliability so that the answers to the question items may reflect the ability of the candidates in a consistent way; and

(e) reasonable validity so that they may measure the true ability of the candidates.

If in a question all candidates

secure full or equal marks or fail to score or there is no attempt at all, then that question does not have any value from the evaluation point-of-view for it does not help ranking.

If the language in which question is framed in vague and ambiguous, admitting of various interpretations both by the examiners and the examinees, the question is of very little value from the evaluation point of view, as it inheres lack of uniformity in the assessment of the answer, thereby vitiating the reliability of evaluation.

The workshoppers request the University authorities to get a model question-paper set bearing in mind these basic attributes.

(3) Having considered the pros and cons of three-type of tests—Essay-type, Short-answer type and objective-type, the workshop concluded that at the undergraduate level essay-type questions be supplemented with short-answer type. It was suggested that a phased programme be launched to reduce the predominance of essay-type by arriving at a suitable proporation of the two as decided by the respective Boards of Studies, the proportion, however depending upon the nature of the subject and level of the course.

(4) In the objective-type and short-answer type tests the element of choice is almost non-existent. It is in the essay-type that the necessity of "choice" arises. With a view, however, to ensure uniformity and comparability of standards, the element of choice among the essay-type questions has to be different than the one currently prevailing. It has to be designed in a way that the students are not encouraged to do restrictive study by omitting certain portions. Instead of free or over-all choice, the workshop favoured internal choice or equally matching alternative questions, each one of the alternative assessing the same type of ability, requiring approximately the same length of answer, having approximately the same difficulty and discrimination value.

(5) In principle, the workshop hails the introduction of internal assessment provided its objectives are well defined and its components effectively and honestly carried out and desired that the weightage should go on increasing progressively as and when the climate of accountability on the part of teachers and convincibility and credibility on the part of students is created.

The internal assessment being a ticklish issue, prudence and circumspection require that a seminar, exclusively devoted to sessional evaluation be organised in which its modes and modalities, the desirability of combining the internal and external marks, the feasibility of scaling the marks to have significant coefficient of correlation, as well as the steps to make it pressure-free be examined in details so as to avoid the perversion of this scheme or lowering of standards.

It was strongly felt in the workshop that the generation and development of Question-Bank on a systematic and an on-going process will remedy many of the maladies anising from the ill-designed question papers. The authorities assured them that soon a workshop on Question-Banks, "their philosophy and know-how" will be organised for the benefit of college-teachers.

(6) With a view to facilitating the setting of a question-paper in conformity with basic attributes mentioned at point No. 2, the Board of Studies of each subject be requested to :

(a) state precisely the genetic and specific instructional objectives of each course and the intellectual abilities and skills to be developed or the expected outcomes of learning;

(b) prepare syllabus in detail incorporating treatment to be given to each topic, its relative weightage, sectional division of the syllabus, etc;

(c) lay down the teaching methods to be adopted; and

(d) prescribe the type and number of questions to be set in a question paper, the pattern of choice and the number of questions required to be answered by students.

The workshop reiterated that the fundamental pre-requisite of effective and efficacious evaluation flows from the improved tone and efficiency of teaching-learning modes and modalites.

The ultimate goal regarding the setting of question-paper and evaluation is to unanimously concede the general principle that if a teacher is good enough to teach, he is good enough to evaluate his student. One who teaches should evaluate his students. However, till the climate is ripe for the implementation of this ideal, interim arrangement can be that there should be viable mix of internal and external paper-setters and evaluators. To mitigate the idiosyncrasies of external setting, the method of discreet moderation can also be helpful.

In general it is averred that all abilities and skills can be measured, provided an appropriate and valid tool is available.

Finally, the workshop called upon the University to organise in every college a task-force, which should promote the functioning of all the experts of the Semester System, thus maintaining the tempo and momentum of its zestful adoption and operation. It is also imperative that for the orientation of the task-force nay, for the orientation of the entire college personnel, a series of workshops, seminars and orientation programmes be conducted with a view to equipping every one with the academic horizons needed for them.

Delhi plans refresher course for teachers of deaf children

The University of Delhi has plans to develop expertise in the Education of the Handicapped. The initial specialisation of the University is in the area of the Education of the Deaf. As part of the Ministry of Social Welfare's programmes in this area of vital national concern, the University has recently started a five week refresher course for the teachers of deaf children from various schools in North India.

Based on a multidisciplinary syllabus, the University has involved experts from the Departments of Lingustics, Education, Psychology, Physics, Medical Colleges, Lady Irwin College, All India Institute of Medical Sciences, the NCERT, the Ministry of Social Welfare, Delhi Administration and several voluntary organisations. The UNICEF, New Delhi, has provided substantial suport in terms of funding and expertise.

The Delhi University is the first University in the country to take interest in the continuing education of the teachers of deaf children. It has plans to initiate work on other aspects such as public awareness on early detection of deafness, research in instructional technology and conceptual matters.

Dr. S.C. Bhatia, the Course Director, finds the interest of the participating university experts as of keen sympathy for the casue and of a serious social concern for the education of the weaker sections of society. The University dons have participated in several activities at the pre-course planning stage. The 1981 is being celebrated as the International Year of the Disabled Persons all over the world. The University's current effort is more a precursor to its greater involvement in the area.

Incidentally, the University of Delhi is probably the first of its kind in providing extensive and appropriate facilities to blind students pursuing higher education. The Adult Education and Continuing Education Cell in the University has undertaken this programme with the belief that much needs to be done in the neglected area of the Education of the Deaf right from orientation/training/retraining of teachers, designing meaningful courses at the pre-primary, primary, secondary and senior secondary stages, and, studying parental/community attitudes towards and awareness of the need to provide education, training and rehabilitation of the deaf children.

Ninth national seminar and silver jubilee of IASLIC

The Ninth National Seminar of the Indian Association of Special Libraries and Information Centres (IASLIC) was held at the Nagpur University. The two themes of the four-day biennial Seminar were (1) the Role of Information Centres in Technology Transfer and (2) the Role of National and State-level Library - Associations in library development in India. The second theme was chosen to mark the Silver Jubilee of the Association which was founded in September 1955 in Calcutta.

Dr V.A. Kamath, Head of Library & Information Services, Bhaba Atomic Research Centre, Bombay in his presidential address emphasised the need for appropriate provision of library and information centres in transfer of technology. Mr. M.R. Chowdhury, Programme Co-ordinator of the Council of Scientific and Industrial Research (CSIR) directed two sessions on the first theme on which 20 papers were presented and 40 persons including Dr. Shahid Akhtar of the Asian Division of the IDRC (Canada) took part in the deliberations.

Two sessions on the second theme were directed by Mr P.B. Roy, Lecturer, Department of Library Science, Jadavpur University, Calcutta. More than 30 persons spoke on some 15 papers presented in the session. At the beginning, two distinguished speakers namely Mr Godfrey Thomson, formerly President, Library Association (UK) and Mr M.B. Pipkin, Director of Libraries, USICA spoke on the second theme with reference to their own countries. Two sets of resolutions, one on each theme, were adopted. One of the major issues debated and accepted was the formation of a Joint Council of Library Associations in India. About 350 persons attended the Seminar.

The texts of the papers and synopses of some others were published by the IASLIC on the eve of the Seminar. Alongside, a special Silver Jubilee Commemoration volume was also brought out by the Association on the occasion. The annual general meeting followed by a special silver jubilee session highlighted the programme of the Seminar. An exhibition of books and equipment was also arranged on the occasion.

Centre for study of high altitude plants

The high altitude plant physiology research centre of Garhwal University has been sanctioned a project for Rs. 7 lakhs to study the physiology of high altitude plants. The project will be financed by the Department of Science and Technology, Government of India. This short-term project will be completed in three years and is likely to yield information on the efficiency of high altitude plants. The field work of the project will be conducted at Tungnath in Chamoli district at an altitude of 3,600 metres.

The Executive Council of the University last year approved the idea of establishing a separate high altitude plant physiology research centre on the recommendations of some eminent scientists in the country. An advisory board for the centre was nominated by the Executive Council which is headed by Dr. M.S. Swaminathan and nine other scientists as its members. The university Executive Council was inducted with the idea of establishing the separate research centre on the basis of the work done by a team of research students of the university. The future structural and functional details of the centre have been worked out by its advisory board, according to which it will have its permanent field station at Tungnath and its analytical laboratory at the university headquarters at Srinagar (Garhwal). The centre shall have the visiting scientists during summer who will help the researchers to study high altitude plants from various angles.

At present there are 12 research fellows working in the centre.

Special course in use of petroleum

The Chemical Engineering Department of the University of Roorkee in collaboration with the Indian Institute of Petroleum and Indian Oil, has organised an advanced training course specially oriented to the problems of energy conservation.

The thrust of the course would be on the latest techniques for efficient use of petroleum and its products.

Dr. Jagdish Narain, Vice-Chancellor of the university while inaugurating the course said that it is a sort of futuristic course with a view to preparing a new generation of engineers who are not only conscious of the needs for energy conservation but also fully equipped with the latest methodology regarding energy conservation.

About 25 professors from various universities are participating in this special course which is the first to be organired by the university

Kanpur constitutes college development council

Kanpur University has constituted Colleges Development Council with a view to improving the educational standards in its affiliated colleges. A sum of Rs. three lakhs has been sanctioned for this purpose. This amount is proposed to be spent during the coming years. The Council would soon meet to find out ways and means for raising the academic standards in the educational institutions.

Vice-Chancellor, Dr. Hemalata Swarup, said that Deans, Directors and Coordinators would be appointed soon to look after the proper implementation of this scheme. The UGC has suggested that the scheme be implemented only in selected colleges in the beginning. Mrs. Swarup hoped that this scheme would prove to be of immense value to students, teachers and other employees as the Commission was anxious to raise their all round standards.

More constituent colleges in Bihar

Mr. Kumud Ranjan Jha, Deputy Education Minister of Bihar, said in Patna that twenty-six more affiliated colleges of the State would be given the status of constituent colleges as soon as the government notification is made. He was inaugurating a function in the JD Women's college. He said that the government was taking all steps for the promotion of girls education. A girl's college in every district headquarter would be established in the coming years.

Dr. K.K. Mandal, Vice-Chancellor of Magadh University said that Rs. one lakh would soon be sanctioned to the college for its development.

BHU succeeds in preparing metallic glass

Metallurgists working in Banaras Hindu University have been successful in making metallic glass which will revolutionise the engineering system. Due to its superiority samples of this exotic material would soon replace the conventional alloys Metallic glass was first produced in 1960 in America and later on in Germany, Britain, Japan and USSR. Prof. T.R. Anantharaman, Head of the Metallurgy Department of the BHU said that metallic glass was the single major glass breakthrough in material science in the recent years. It can be immediately used in the preparation of safety blades.

Flying clubs for UP universities

The Avadh University and the Pantnagar University will soon have flying clubs. A proposal to this effect is being finalised by the Uttar Pradesh Government. These universities have air strips close to their campuses.

Preferential treatment for NCC cadets

NCC cadets hereafter will get preference for entry to the National Defence Academy. Earlier this facility was given for admission to the Indian Military Academy only. The NCC Director-General Maj. Gen. Narendra Singh said in New Delhi that NCC cadets with "C" certificates might be given preference in all the three divisions of services. The cadets with "C" were already getting preference for 32 seats in the IMA and also in the Army so far.

Bengal introduces condensed medical course

The three-year diploma course in Community Medical Service has been introduced by the West Bengal Government. This will give more emphasis on preventive aspects of health care rather than on curative aspects. The Health Minister, Mr. Nani Bhattacharjee, said in Calcutta that environmental pollution and absence of same water resources accounted for over 75 per cent of the disease attack in the villages. Timely diagnosis and treatment of these diseases in the health centres would ease overcrowding in hospitals in towns.

The diploma course was prepared by the State Medical Faculty in consultation with 22 experts in different disciplines of medicine. It had been found from experience that preventive and public health measures contributed immensely to reduction of mortality rate within the shortest possible time and with comparatively little expenditure. The Health Minister said that plague, small-pox, malaria and cholera had been either eradicated or controlled to a large extent through public health measures.

The World Health Organisation had decided that primary health care should be provided to all by 2000 A.D. The new diploma course conformed to the current internationally accepted views regarding availability of health care to the community at large.

The primary health care system could not give job satisfaction to the medical graduates. For the degree course students in medicine, more emphasis was given on curative treatment. Their education was sophisticated and instrument oriented. In the primary and subsidiary health centres in the villages, there was no possibility of placing such sophisticated instruments at their disposal. This was one of the reasons why medical graduates were reluctant to go to the rural areas. The first institute for Community Medical Service will be set up at Beharmpore. Theoretical classes and some of the practical classes will be held at the district hospital, and the rest of the partical classes will be held at Karnasubarna primary health centre. Five more institutes—at Balurghat, Darjeeling, Purulia, Jalpaiguri and Midnapur—will be opened in coming month. To start with, the Chief Medical Officers of the respective districts will be the ex-officio principals of these institutes. Doctors in the State Medical Service will be the teachers. The total number of seats in these institutes is 160. Of these, 28 are reserved for scheduled castes and eight for scheduled tribes. The Minister appealed to the people and the doctors to co-operate with the Government in making the new scheme a success.

Reddy pleads for new educational environment

While inaugurating the silver jubilee celebrations of the Kurukshetra University, President Sanjiva Reddy urged the universities to develop new syllabi and new methods of teaching under which the students were not burdened with textbooks and should concentrate on learning and acquiring greater knowledge of the subject. He said that the system should be changed in such a way that each individual finds his profession through his personality and contributes his maximum to the fulfilment of the ideals of peace and harmony. He exhorted the universities to give a new orientation to the understanding of the very aim of life. The swelling ranks of unemployed graduates indicated the existence of lopsidedness in the country's development efforts and the solution lay in linking the educational system with the changing pattern of occupational structure in the country. In his age of specialisation, Mr. Reddy said, educationists had to consider all aspects and if necessary revamp the educational system so that only meaningful and relevant education was imparted.

Mr. Reddy also laid the foundation stone of the Institute of Sanskrit and Indological Studies on the campus.

Mr. G.D. Tapase, Governor of Harayana and Chancellor of the University said that the Kurukshetra University would play its role in the cultural and intellectual resurgence of Haryana. He assured that the university would do its utmost to achieve the noble ideals which had inspired the university management to set up the Institute of Sanskrit and Indological Studies. He reviewed the progress made by the university during its 25 years of existence.

The Chief Minister, Shri Bhajan Lal, while welcoming the President, hoped that the Kurukshetra University would be able to achieve its ideals and work for the propagation of ancient culture and its values.

Visva Bharati Act to be amended

A joint select committee of Parliament constituted to consider amendment to the Bill on Visva Bharati has decided to invite memoranda containing views of various individuals, organisations and institutions interested in further development of Visva Bharati.

The Visva Bharati Act 1961 was passed by the Parliament to declare Visva-Bharati, founded by Gurudev Rabindra Nath Tagore as an Institution of National Importance and provide for its functioning as the unitary, teaching and residential university and for the attainment of certain objects for which the institution was founded.

The functioning of the university was disrupted several times with the result that the academic life has been seriously affected. To remedy the situation an ordinance was promulgated by the President in November 1971. By amending the Samsad (Court) the Karma-Samiti (Executive Council), the Shiksha Samiti (Academic Council), the Artha Samiti (the Standing Finance Committee) and the various other bodies were replaced by nominated bodies. The complaint persisted that the university was drifting away from the ideals for which it was established and that the academic standard was going down. In order to ensure that the original character of the university is restored a committee was appointed under the chairmanship of Mr Justice S.A. Masud to suggest to the Government the guidelines on which Visva-Bharati was to be developed. The committee submitted its report in 1975 which inter-alia made recommendations of legislative character involving amendments of the Act and the Statutes. The present Bill seeks to implement the recommendations of the committee accepted by the Government.

Among the notable features which the Bill seeks to introduce, are: inclusion of the powers of the University in detail; bringing the powers of the Paridarsaka (Visitor) at par with those in other Central Universities; changes in the mode of appointment of the Acharya (Chancellor) and Upacharya (Vice-Chancellor); provision for Vitta-Adhikari (Finance Officer) instead of Artha-Sachiva (Treasurer); comprehensive changes in the composition, powers and functions of the Samsad (Court), Karma-Samiti (Executive Council), Siksha Samiti (Academic Council), Artha-Samiti (Finance Committee) and Patha-Samiti (Board of Studies); provision for the constitution of boards of bhavanas, their composition and functions; comprehensive provision for appointment of teachers and composition of Selection Committees for various posts; provision for the security of service of teachers; provision for a students' tribunal for adjudication of disputes, arising from any disciplinary action taken against students and provision for submission of the annual accounts together with the audit report to the Central Government for being laid before both Houses of Parliament.

Bharat Kala Bhavan celebrates diamond jubilee

Bharat Kala Bhavan of Banaras Hindu University, more internationally known for its rich collection of miniature paintings, has developed a museum of rich art and archaeology. To mark the diamond jubilee of the Bhavan, a seminar on Gupta Art and Culture and an Exhibition on the Gupta Art was organised at Varanasi. The seminar was attended by leading scholars of Indian art and culture and eminent scholars from West Germany and Victoria and Albert Museum, London. The Bhavan started sixty years ago has a small private collections which over the years has developed into a museum of national importance. Late Padma Bibhushan Rai Krishnadas was not only an eminent scholar of Indian art and culture but was a keen lover of Hindi literature. His deep love for ancient Indian art and culture turned him into one of the greatest connoisseurs of ancient Indian art objects. Nagri Pracharini Sabha allowed its premises to be used by the Bhavan which has now become an integral part of the Banaras Hindu University since 1950.

Maharaja Bibhuti Narain Singh, Chancellor of the University, while inaugurating the seminar paid rich tributes to the founder Director of the Bhavan. Dr. Hari Narain, Vice-Chancellor of the University, also referred to the activities and the development of the Bhavan during the last two years and expressed satisfaction over the generous grants received from the Department of Culture, Government of India which enabled the Bhavan to undertake a number of projects, notable among them being the publication of catalogues.

The seminar highlighted different aspects of the Gupta Art and Culture i.e. architecture, culture, sculpture, iconography, religion, archaeology, scientific and technological achievements, music and aesthetics. About 20 research papers were presented at the seminar.

While defining the scope of the seminar, Prof. Anand Krishna of the BHU sought to draw attention towards the national ideals and aspirations that inspired the art, culture and thought during the Gupta period. Mr. C. Sivaramurti, former Director of the National Museum, delivered the keynote address on the place of Gupta Art in Indian Culture. In his address, Mr. K. Deva, a noted authority on Indian Art and Archaeology highlighted the achievements of the seminar and complimented Mr. O.P. Tandon and the authority of the Bhavan for successfully organising the seminar.

CSIR TOKTEN projects

Professional men and women, who have achieved prominence in their fields and have settled abroad, are being invited for short technical assignments on a voluntary basis to their countries of origin, through a programme known as TOKTEN—Transfer of Know-how Through Expatriate Nationals.

Nine developing countries are currently seeking to counter the brain-drain, by bringing their high-level expatriate scientists, engineers, and other technical specialists home for brief consultancies. This project is in strong contrast to the UN convention that no man be sent as consultant to his own country.

Turkey, where the concept originated, has been carrying on an expanding TOKTEN project since 1977. Egypt, Greece, Grenada, Pakistan and India have recently taken up the search for suitable expatriates willing to contribute as problem solvers. China, Philippines and Sri Lanka are expected to launch similar programmes this year.

During the first year of operation in Turkey, 28 assignments were completed. Almost all the consultants got top ratings by their host organisations. Many were invited for return visits. These expatriates were deemed more productive than equally skilled foreign consultants by a ratio of about 3 to 2.

Compared to 28 assignments in the first year in Turkey, 46 assignments were completed during 1978, and 65 in 1979. An additional 36 visits were to take place early in 1980. Fields covered ranged from Nuclear Medicine, Solar Energy Application and Systems Engineering, to Underwater Accoustics and Environmental Pollution. Visits lasted from one week to three months, the average being about a month's duration.

The United Nations Development Programme (UNDP) is providing assistance for the National TOKTEN projects. Mr. Rustam D. Lalkaka of India, who was instrumental in setting up Turkeys' pioneering efforts has been helping to establish a referral system to help in identifying candidates available for short assignments in the countries concerned. Indian Missions abroad have been compiling particulars of Indian scientists willing to work under this project. Resident representatives of UNDP are co-operating in the servicing of the project. The Manpower Division of the CSIR, which maintains an Indian Abroad Register and operates the Scientists' Pool for temporary placement of highly qualified scientific and technical personnel, is the coordinating agency in India.

Some of the advantages of TOKTEN over traditional technical assistance are the following :

(1) The sharing of language and cultural traditions with national colleagues helps returning expatriates greatly in the transfer of skilled know-how.

(2) National personnel have shown greater willingness to accept frank criticism from compatriot expatriates than they would from a 'foreigner'.

(3) Costs are kept low since consultants are willing to waive their normal fees of $200 to $300 a day. The expatriates are paid their to and fro passage, internal travel, and local hospitality at UN rates. The average consultancy in Turkey costed $2,500 per month, which is less than half the cost of a similar short-term consultancy in the

UN system. Expatriates find their own time if they are self-employed, get time with pay in case of some employers, or can try for sabbatical leave. The host organisations may provide small honoraria.

(4) The matching of experts and needs on a continuous basis enables the arrangement of consultancies with considerable speed. Locating experts by traditional methods used to take upto a year or longer.

(5) Continued feed back of know-how has been an unexpected benefit, which has accrued. Once back in their countries of residence, experts maintain contacts with national colleagues, send them technical literature, arrange for post-doctoral fellowships and visits of colleagues to the institutions with which they are connected, etc. Since many expatriates would welcome the opportunity to contribute to the development of their country of origin, recruitment of consultants for new projects is not expected to pose great problems, once the scheme becomes known.

It is expected that the TOKTEN consultants would themselves be able to assist in identifying available colleagues from other developed countries. It is also hoped that the TOKTEN concept will expand to include the recruitment of technical specialists, with similar linguistic and cultural backgrounds, for short-term assignments in countries participating in the programme. The United States Agency for International Development (US AID) is proposing to set up a similar programme involving the return of expatriates living in USA to their countries of origin on brief assignments, to be administered by an organisation, such as Volunteers in Technical Assistance. The United States benefits from the skills of about half the Third Worlds' expatriate professionals, numbering some 500,0000.

India, which has recently announced the project, has already received offers of service from about 200 nationals abroad, mostly in the United States of America. Publicity is being given to the scheme through the Indian missions abroad. More names are expected to be received shortly.

It is necessary to identify areas of priority and the needs of individual institutions, and then try to make as good a match as possible between the requirements for experts and the availability of experts. Necessary procedures have to be worked out so that the scheme can operate with the least possible delay or hold-up. A list of experts who have volunteered their services, indicating their citizenship or country of permanent residence, specialisation and the areas in which expertise may be provided has been prepared. Appropriate organisations where their skills could be best utilised have to be identified so that lines of communication may be established between the proposed organisation and the prospective consultants.

Universities need revitalisation

A seminar on the theme of contemprary concerns in Commonwealth Literature was organised by the English Department of Lucknow University in collaboration with the University Grants Commission.

Prof. B.N. Chaturvedi, Director of the seminar, while welcoming the delegates pointed out that the concept of Commonwealth literature was relatively new. He outlined the quality of separateness which has resulted in the development of growth of a sizeable and significant body of literature which has come to be known as Indo-Anglian literature.

Mr. G.P. Pandey, Vice-Chancellor, speaking at the seminar remarked that Commonwealth literature was both our legacy and our living tie with the rest of the world. The study of Commonwealth literature will move us out of the morass of parochial limits.

Prof. Narasimhaiah in his address said that the universities too often become imitative and derivative which ultimately leads to their decay. What is necessary, he observed, was that such systems re-vitalise themselves. He said that the Lucknow University has done well to include a study of Commonwealth literature in the curriculum of the English department. He pointed out that the term 'commonwealth' was used by Pt. Jawaharlal Nehru who also used the English language impeccably and very creatively. The English language is not the sole properity of the British. In fact, the language is spoken more outside Britain than in that country. By the same token colonial writing has injected fresh blood and given a push to this body of literature.

ISI to organise summer school on mathematical analysis and probability

The Summer School on Mathematical Analysis and Probability to be conducted by the Indian Statistical Institute at its Bangalore Centre from June 1 to June 30, 1981 is meant primarily for young university/college teachers, research scholars and bright M.Sc. students in Mathematics, Statistics or Physics. The topics to be covered in these lectures are: (1) Fourier Analysis on PR with applications to Probability Theory etc., (2) Basic Functional Analysis with applications to Function Spaces sand Function Algebras etc., (3) Ergodic theory and (4) Discrete Parameter Martingales.

Not much will be assumed by way of prerequisites for any of these topics. While topic (4) may seem somewhat specialized, it has recently found many applications in Mathematical Analysis.

Interested persons may apply to: "Summer School Programme (1981)" Statistics and Mathematics Division, Indian Statistical Institute, 203 Barrackpore Trunk Road, Calcutta 700 035.

The deadline for applications is February 15, 1981. Applicants are required to enclose their bio-data and two letters of recommendation from their teachers/supervisors/senior colleagues.

Round trip second class railway fare and free hostel accommodation (including meals) will be provided for the selected participants of the Summer School.

LNM university chalks out development programmes

The L.N. Mithila University, Darbhanga, has made a provision for the expenditure of Rs. 7.6 crores for the year 1981-82 in its current budget. An equal amount will be raised from various sources for balancing its budgetary requirements. Prof. Uma Nath Jha, Pro-Vice-Chancellor of the university said in Darbhanga that the budget passed by the university Senate has been sent to the State Government for approval. Prof. Jha said that Rs. 5.40 crores would be spent on fortynine constituent colleges and Rs. 20 lakhs on fifteen affiiliated colleges while a sum of Rs. 39.5 lakhs would be spent on various postgraduate departments. In view of the growing needs for the women's college, a sum of Rs. 5 lakhs has been provided for the development of a women's college and separate postgraduate girls hostel would also be estabished. The university has also elaborated plans for providing residences to its faculty members. The university library is also proposed to be expanded. He hoped that the State Government would be coming forward to meet these demands.

Teachers against autonomous colleges

The Association of University Teachers at its meeting held at Tiruchi criticised the Madras University Syndicate for granting autonomous status to seven more colleges under its jurisdiction. The Association has described it as an attempt to widen the gap between the 'haves' and the 'havenots' since the autonomous institutions were veritable elitist camps catering to the needs of the higher-ups in society. Mr. M. Nagarajan, President of the Association of University Teachers also urged the Madras University authorities to follow uniformity in the pattern of examinations and choose either annual or semester examinations in all the three years of the degree course and in both the years in postgraduate course commencing from 1981-82.

UP to set up university service commission

The Uttar Pradesh Education Minister, Swaroop Kumari Bakshi, said in Rae Bareli that the selection of degree college and university teachers would soon be made by the State University Service Commission Board. She was inaugurating a two-day function of the Kanpur University Teachers Association. She said that a Bill providing for such a commission had already been passed by the State Legislature and has been sent to President for his assent.

Colleges urged to introduce environmental engineering courses

The Engineering Sciences section of the Indian Science Congress Association has suggested the introduction of elementary and advanced courses on environmental preservation at school, college and university levels. In the 10 point recommendations, the draft of which has been sent to the Science Congress, it has been suggested to the Government to form zonal research and development centres of environmental engineering. It was noticed that the different industries in the country have not been following the laws strictly which according to some scientists fall short of certain essential necessities. Pollution must be checked at its sources. It was felt that the existing legislation should not only be revised but implemented strictly by making it obligatory for all industrial establishments to keep effluents to safe levels. The specifications of Indian Standard Institution are needed to be amended and if no standards are settled for certain industrial effluents, they should be defined afresh.

The sectional committee also called upon the Science Congress to suggest substitution of new processes.

News from Agril. Varsities

Water management workshop held at Patna

Poor water management on the farm land has been responsible for large wastage of irrigation water, low irrigation efficiency, water-logging and salinity hazards. This has resulted in low crop yield. Mr. C.R. Vaidyanathan, Agricultural Production Commissioner of Bihar while inaugurating a workshop on Engineering Aspects of Water Management Technology at the Rajendra Agricultural University said that the agricultural scientists should study the problem in all aspects so that proper utilisation of water resources can be made.

The two-day workshop was attended by delegates from different parts of the country consisting of eminent engineers working on Water Management Technology.

Prof. Jaswant Singh of the IIT, Kharagpur in his keynote address emphasised upon the infer-disciplinary planning to water management strategy and wanted that the work be taken up on rain all probability maps and prediction model interaction between scientists of the university and the command area. He felt that the agricultural personnel working on environment were deficient.

The workshop was presided by Dr. K.K. Jha, Vice-Chancellor of the Rajendra Agricultural University. He said that the water management was not only a technological problem but has social dimensions as well and required persistent and integrated efforts by engineers, agricultural scientists, social scientists and social institutions. He informed that with the financial assistance from the Indian Council of Agricultural Research the existing soil and water management centres at Madhepura and Bikramganj are being expanded. About twenty technical papers were presented and discussed in various sections of the seminar. Dr. R.K. Rai, Professor of Agricultural Engineering of the university was the convener of the workshop.

Management development programme at PAU

Dr. Amrik Singh Cheema, Vice-Chancellor of the Punjab Agricultural University, said that determining priorities for expenses on the basis of their urgency and utility and allocating scarce resources to different uses according to such priorities was an important area of decision making in business as well as non-business organisations. Development of managerial talents in enterprizes, was necessary to match the available resources with purposeful expenses. Budgeting could serve an important role if active participation of persons concerned with budgetary allocation was sought, he added. Dr. Cheema was addressing the participants of a management development programme on “Financial Management for Non-Finance Executives' organised by the Department of Business Management of the PAU and the Ludhiana Management Association. Dr. Cheema said that usefulness of such training programmes was beyond doubt for ensuring best utilisation of resources and optimisation of results. He praised the efforts made by Ludhiana Management Association and Department of Business Management, PAU, in organising such programmes.

Mr. Ravi Sawhney, Deputy Commissioner of Ludhiana, and Patron of Ludhiana Management Association, distributed the certificates of participation to the participating executives and entrepreneurs. He said that there was a large potential for such training programmes with a view to giving broader and systematic base for managerial decision-making, particularly in smaller orgnisations. He further said that for putting up some basic ideas and generalisations of management theory into practical shape, more and more such programmes were needed. Development of agro-based industries needed requisite managerial talents hitherto inadequate and Ludhiana Management Association should strive to organise some more management development programmes keeping in view this need.

Dr. A.S. Atwal, Dean of Postgraduate Studies of PAU, appreciated the research and extension activities of the Department of Business Management and emphasised that results of research work should be tested in the field for their application.

Rural literacy seminar begins at PAU

Dr. Amrik Singh Cheema, Vice-Chancellor of the Punjab Agricultural University, said that the functional literacy programme launched by the Punjab Education Department would help in dissemination and adoption of the new farm technology among the farmers in a big way. Dr. Cheema was inaugurating a three-day Seminar-cum-Workshop on Rural Functional Literacy Programme, organised by the Department of Extension Education of the PAU in collaboration with the State Department of Education at the Punjab Agricultural University for the project officers and supervisors of the State. The object of the programme is to spread literacy for the purpose of making farming more efficient. Dr. Cheema said that this programme would also benefit the rural women who were equally responsible for running the farms and homes on scientific lines. Dr. K.S. Nandpuri, Director of Extension Education of the PAU said that the adults, both men and women, should be assured that the time spent by them in learning new farm technology would prove helpful in improving their farms and homes.

UK teachers visit PAU

A group of 24 teachers and educationists of Southhall area of U.K. visited the Punjab Agricultural University recently. The purpose of the visit was to get themselves acquainted with the social climate of the Punjab and the methods of teaching because the students they teach in U.K. are of Punjabi extraction. This would help them in planning the teaching system in their own schools where Punjabi children are studying. The visiting teachers had a meeting with the Vice-Chancellor, Dr. Amrik Singh Cheema and later visited the Departments of Plant Breeding and Animal Sciences and the Museum of Rural Life of Punjab and the Museum of Water and Power Resources of Northern India. They also visited two senior model schools there.

Five PAU scientists get awards

Dr. K.S. Nandpuri, Dr. A.S. Kahlon, Dr G.S. Sekhon and Dr. V.V.N. Murty of the Punjab Agricultural University, Ludhiana, have been awarded the coveted Rafi Ahmed Kidwai Memorial Prize for the biennial 1979-80 by the Indian Council of Agricultural Research (ICAR) for outstanding research work in the fields of horticulture, economics, soils and agricultural engineering, respectively. The ICAR has also given an award to Dr. Khem Singh Gill, Dean, College of Agriculture, for team research work in agriculture.

The ICAR gives 10 awards every two years to scientists for outstanding scientific research in different fields including agricultural engineering, horticulture, economics, entomology, plant breeding, agronomy, soils, animal husbandry and fisheries. This award carried a cash prize of Rs 10,000/-, a citation and a medal.

ICAR aid for PAU

The Indian Council of Agricultural Research has sanctioned a sum of Rs. 32 lakhs for research in veterinary sciences at the Punjab Agricultural University. The university proposes to spend Rs. 17 lakhs on the establishment of a clinic for small animals and Rs. 5 lakhs on research on tickborne diseases of crossbred cows. It is also proposed to set up a Department of Veterinary Public Health in the veterinary college.

HAU starts training in vegetable cultivation

Dr. P. S. Lamba, Vice-Chancellor, Haryana Agricultural University while speaking at the valedictory function of the 10 month training in Intensive Vegetable Cultivation and Preservation, said that the prospects of growing vegetables were quite bright in Haryana because of the vicinity of the capital to the State". This training which was one of the first of its kind in the country, was organised by the H.A.U.'s on Training & Education (IATTE). Dr Lamba said that growing vegetables could be a profitable avocation particularly for small and marginal farmers who have a fair measures of irrigation facilities and ready markets for their produce. Dr. Lamba said that this training which was of 10 months duration, was organised with a view to promoting self-employment amongst farmers who could earn a decent living by taking up vegetable cultivation.

Dr. R.P. Singh, Associate Director (Training), disclosed that in this long duration training in which 10 selected farmers were provided training, types of vegetable farming and economic use of irrigation water and fertilizer, systematic post harvest handling, storage and marketing were also included. To make the training all the more comprehensive. mushroom cultivation and growing of uncommon vegetables like celery, asparagus, brocoly and lettuce were also included. The practicals were held on about 5 acres of land and the trainees were paid Rs. 10/- per day during their practicals i.e. for about 20 days in a month. Lodging arrangements were also made by the University. This training began in March last year and was conducted at the H.A.U's research farms.

Besides cultivation of vegetables, their proper and scientific preservation was also taught to the trainees. Dr. Singh said that more than 100 trainings of various types have been organised by the Institute (IATTE) during the preceding year.

News from UGC

UGC guidelines for correspondence courses

The University Grants Commission on the basis of a review, is of the opinion that Correspondence Courses in India have come of age, and that they now need to be integrated into the mainstream of higher education. New guidelines have been approved by the Commission towards this objective. They cover both the existing correspondence courses and new ones that may be started.

Nearly one lakh seventy thousand students are presently enrolled in correspondence courses for first and postgraduate degree besides diplomas and certificates in twenty-two universities. Of these, Mysore University has thrown open its courses to all, irrespective of their educational qualifications. The Commission, however, is against indiscriminate admissions, to guard against wastage and to maintain standards. While endorsing in principle the idea of an Open University, it has asked universities to set up an admission test for those who don't possess the minimum qualifications.

To make correspondence courses an integral part of higher education, the UGC wants the academic responsibility for such courses to vest with the university teaching departments, rather than with the schools or institutes of correspondence courses. The entire faculty of such schools or institutes should be borne on the strength of the university teaching departments. Teachers, engaged in correspondence courses should have the same facilities for research as those in the departments.

Similarly, the Commission would want students of correspondence courses to be treated at par with regular university and college students for admission to higher courses. There should also be parity in the matter of concessions, freedships and scholarships. It feels that students should be free to switch over from correspondence courses to regular courses and vice-versa at the end of the first or second year of the degree course.

The guidelines provide that lessons should be written by the best available persons individually or in teams of 3 to 4 selected on an all-India level or at least the State level. All lessons should be reviewed by independent persons on payment of suitable remuneration. They should be revised and made uptodate at least once in every three years and even earlier, if necessary.

The guidelines stress that the despatch of lessons to students should be very carefully planned. The institutes of correspondence courses should ensure that the lessons are despatched in time at regular intervals. A schedule should be laid down for this purpose at the beginning of the year which should be notified to the students, and a record maintained of the dates when the lessons are actually despatched.

The guidelines also lay down that ordinarily correspondence courses at the undergraduate level should be introduced by only one university in a State, except when a University proposes to introduce such courses in a new faculty or when the university offering such courses, has reached an enrolment of 10,000.

UGC accepts merit promotion

The University Grants Commission has accepted the self-assessment scheme for faculty members. Under this scheme it will invite university teachers having long service records for promotion to higher grades with usual financial benefits. Mr. Shambu Ghosh, Education Minister of West Bengal, said in Calcutta that the State Government would implement the scheme as early as possible. He said that the university teachers had been asking for the introduction of the scheme for quite some time. The State Government would apprroach the Commission to send the necessary funds required for the implementation of the scheme.

Professors of eminence to be appointed

The University Grants Commission has decided to appoint Professors of eminence in various universities in the country. The idea was originally mooted in 1975 but could not be implemented during the Fifth Plan period. It is proposed to appoint one hundred Professors of eminence in the universities during Sixth Plan period.

Prof Satish Chandra speaks on the achievements of UGC

Professor Satish Chandra on his retirement from the Chairmanship of the University Grants Commission, in his valedictory address to the Commission looked back to indicate the important achievements and project future problems.

At the outset, he mentioned that during the period 1973 to 1980, there were a number of reviews of the working of the Commission. The Jha Review Committee and UGC Review Committees had gone into the various objectives and programmes of the Commission in considerable detail. "I would not be accused of partiality if I say that the Commission has emerged with credit from these scrutinies", He pointed out that they had also brought out some of the weaknesses.

He said that a major effort was made during this period to induct better teachers by improving their salaries and laying down qualifications, emphasising research. "I am personally convinced that it was right to lay down these qualifications, because from a subsequent study it is shown that about 50% of university teachers, which are appointed, have a Ph.D."

Reviewing some of the other highlights during this period, Professor Satish Chandra said "Considerable emphasis has been placed on the upgrading and revision of syllabi. A large number of workshops were conducted towards the same and I am happy that most of the workshop reports have been published and have been circulated to the universities. It would be necessary to ensure that they are implemented in practice by the universities. For this financial inducements may not be enough. The entire structure of the universities will have to be gone into. The idea of multiple streams of courses, and of autonomous colleges where some progress has been made will also have to be pursued. Side by side with this upgrading of syllabi and flexibility in the syllabi, attempts have been made to introduce link courses in colleges and starting short-term diploma courses towards vocationalisation in universities. Both these are still in the experimental phase. However, the point to emphasise is that we have been able to move away from the rigid lines of the past."

He added that subject panels constituted "the greatest success story' as far as the UGC was concerned. The university service instrumentation centres were another extremely important new initiative for infrastructural support. The Commission's adult-education programme was not merely a literacy programme, but one for linking universities and colleges more closely with the community. Similarly, in the field of continuing education and correspondence courses, existing programmes had been reviewed to make them more realistic. As a result, the academics had come to accept adult and continuing education, as a legitimate part of the activities of the universities.

The UGC Chairman referred to efforts that had been made to develop programmes of support to weaker sections and backward communities and regions. He, however, felt that this was an area where a great deal had to be done. The Commission's policies, however, should not lead to populism.

Professor Satish Chandra, observed, "Often good guidelines can go off the rails when it comes to implementation, specially if there is a shortfall in the funds indicated by the Planning Commission for the sixth plan. The Commission would have to watch very carefully that the developmental strategy it has adopted for the sixth plan does not, in practice, lead to the weakening of those centres which it has built up with great effort and care during the last three or four plan periods."

Speaking of the shortcomings, he said, that one of these was monitoring. There was also insufficient communication between the Commission and teachers, State Governments and the wider community. Yet another problem was of a weak data base. He also felt that the linkages between the university system and the institutions outside the university system were very tenuous.

He pointed out that subject panels were the most important means of providing a continuous linkage and interaction with the academic community. It had been estimated that about 200 to 250 senior academics were involved closely with the UGC through the panels and other standing committees. Professor Chandra, however, felt that there should be an adequate number of publications to bridge the communication gap.

He stressed the importance of harmony and cooperation in the triangular relations between the UGC, the Central Government and State Governments. He said that the matter had to be considered in the background of education being on the concurrent list, and the need of strengthening the UGC for discharging its statutory responsibilities.

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No. Ectt/II (2)/81

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(1) For the purpose of determining high second class, the mid-point between the minimum percentage of marks fixed by a University for award of second division and first division may be taken.

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D.S. Joshi
REGISTRAR

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2. The persons selected will be on probation for a period of one year on duty within a continuous period of two years.

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5. Applicants should be prepared to appear for personal interview at their own cost unless specially exempted. **It is open to the University to fill or not to fill the post now advertised.**

E.S. Reddi
REGISTRAR

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Kalra, Neena. Patterns of psychological problems of children of 5-13 years : Their etiology and symptomatology. Agra University.

2. Tiwari, Rashmi. A study of the prevalent practices of teachers and parents for disciplining students and training of students with special reference to permissiveness in homes and schools. Agra University.

3. Wadehra, Sarla. Parental aspirations as related to personality and school achievements of children. Panjab University.

Sociology

1. Awasthi, N.N. Impact of Family Welfare Programme on middle class families with special reference to Jhansi urban area. Agra University.

2. Bhaskar, Vinay. Modernization and industrial worker. University of Delhi.

3. Lakshmi Pathi Raju, Mudunuri. Suicide in India: Its nature and causation. Andhra Univeristy.

4. Narasimharaju, Datla. The pattern of homicide in India with special reference to Andhra Pradesh. Andhra University.

5. Rajyaguru, Harshad Mahashanker. Socioeconomic status, individual modernity and acceptance of family planning: A study of mothers of children who attended Baroda Municipal Corporation Balwadies during the year 1979. M.S. University of Baroda.

6. Tripathi, Sarva Deo. Factory workers and occupational mobility. University of Gorakhpur.

Political Science

1. Bhardwaj, J.P. Uttar Pradesh mein gaon panchayaton ke sangathan evam karyon ka vyavharik adhyayan: Aligarh zile ke vishesh sandharab mein. Agra University.

2. Dubey, Vinay Kumar. A critical study of the organisation, working and achievement of Third Parliament of India. Agra University.

3. Gupta, Ram Bharose. Implementation of national emergency powers (Art. 352) of Indian President. Jiwaji University.

4. Jain, Pukh Raj. Prime Minister of India: A critical study. Agra University.

5. Mewafarosh, Jiwanlal. Bhutan: A political constitutional and administrative analysis from 1947 to the present. Jiwaji University.

6. Srivastava, B.P. Political philosophy of Sir Earnest Baker: Some aspects. University of Rajasthan.

Economics

1. Arora, Rajinder. Demographic trends and economic development in Jammu and Kashmir State since 1951. University of Jammu.

2. Krishna Rao, C. Siva Rama. Changing agrarian relations in India: A case study of Andhra Pradesh. Kakatiya University.

3. Kulshrestha, Laxmi Rani. Bharat mein udarvadi sampradaya ke arthik vicharon ke yogdan ka mulyankan. Agra University.

4. Mahajan, Raj Kumar. Impact of improved farm technology on income productivity and employment in farm economy of Marh and Batala blocks. University of Jammu.

5. Mathur, B.K. Vishwa tel sankat aur uska Bhartiya arthvyavastha per prabhav. Agra University.

6. Mohinder Singh. Socio-economic problems of migrant labour of Kashmir. University of Jammu.

7. Neerada Reddy, P. A study of social and private rates of return on higher education. Osmania University.

8. Rastogi, Kusum. Gandhi Ji ke arthik vichar aur Bharat ka audyogik vikas. Jiwaji University.

9. Sharma, Brij Kishore. Economic conditions of peasants in the Jaipur State, 1880-1949. University of Rajasthan.

10. Sharma, O.P. Socio-economic survey of Aligarh District. Agra University.

11. Sharma, V.K. Economic factors affecting acreage under sugarcane in the state of Uttar Pradesh. Agra University.

12. Srivastava, Sushma. Narcotics and economic development of India with special reference to its role in resource mobilisation. Jiwaji University.

Education

1. Adi Reddy, C. Inter-relationships between organizational climate of secondary schools, socio-economic status of students, students' perception of rewarding behaviour, and their academic achievement. Osmania University.

2. Bakhshi, Suneethi Jatendranath. Crisis in school: A study of factors hindering school improvement programmes. M.S. University of Baroda.

3. Dubey, Ram Raj. Determinates of excellence in secondary school teachers and factors underlying them. University of Jammu.

4. Patel, Manibhai Shivabhai. A study of innovative proneness of secondary and higher secondary school teachers. M.S. University of Baroda.

5. Sastry, V.B. Development of secondary education in Orissa, 1882-1966. Utkal University.

6. Shivappa, Doddagowdra. Factors affecting the academic achievement of high school pupils. Karnatak University.

7. Singh, Bhawani. Teachers motivation to work. University of Rajasthan.

8. Srivastava, Ramesh Chandra. An investigation into the faculty participation in the administration of institutions offering professional courses of study. University of Delhi.

9. Sudhir Kumar, M.A. Impact of education on social attitudes of people in some backward villages of Malabar. University of Calicut.

10. Veerkar, Pratibha Prabhakar. A study of the effect of integrated approach of teaching social studies on the performance of the pupils of fourth standard of the primary schools. M.S. University of Baroda.

11. Yodsuwan, Vichitr. A study of factors affecting inservice education programme of teacher education programme in Thailand. Sardar Patel University.

12. Zadoo, Chander Kanta. The effect of socio-economic deprivation on the structure of personality of youth at 10+2 stage. University of Jammu.

Commerce

1. Dahiya, Virendra Singh. Economics of nationalised bus services in Haryana. Agra University.

2. Rajeswar Rao, K. Working capital problems of public enterprises in India with special reference to selected undertakings. Kakatiya University.

3. Raychaudhuri, Sankarranjan. Government control of economic enterprises in West Bengal. University of Calcutta.

4. Sanjeeva Reddy, Paidi Lakshmayya. Steel industry in India with special reference to mini plants: Their role, problem and prospects. Andhra University.

5. Singh, Preeti. Life Insurance Corporation and the capital market in India. University of Delhi.

6. Subba Rao, Bolisetti. Labour welfare in jute industry: A study of welfare programmes in three selected mills in Andhra Pradesh. Andhra University.

Home Science

1. Lina. Development and evaluation of low-cost indigenous food mixes for preschoolers. Sri Venkateswara University.

HUMANITIES

Philosophy

1. Saxena, Sushma. A comparative study of four main yogas viz Gyanayoga, Bhaktiyoga, Karmayoga and Rajyoga. Agra University.

2. Tiwari, Indira. Vedic vangmay mein manstatwa. University of Saugar.

Linguistics

1. Dwivedi, Kailash Behari. Bundeli kee shabd sampada: Stotra evam samarthya. University of Saugar.

2. Gandhi, Dharam Pal. A structural sketch of Galo language. University of Delhi.

3. Rajendran, N. Description of the language of Mudugas. University of Kerala.

Literature

English

1. Chattopadhyay, Krishna. A study of the short story. University of Calcutta.

2. John, K.K. The theme of alienation and suffering in the works of J.D. Salinger and Saul Bellow. Saurashtra University.

3. Nageswara Rao, E. The rhetoric of Hemingway. Osmania University.

4. Nautiyal, Indu. Emily Dickinson as a mystical poet. Agra University.

5. Rizvi, S.A.H. The Victorian religious and spiritual ferment and Tennyson. Agra University.

6. Sharma, Rashmi. The child in Dickens: A critical study. Agra University.

7. Venugopal, G.S. New criticism with special reference to John Crowe Ransom and Allen Tate. Sri Venkateswara University.

Sanskrit

1. Agrawal, Laxmi. Sanskrit kavyon ka samikshatmak adhyayan, 1100-1500 isvi. University of Gorakhpur.

2. Bhalla, Madhu. Atharvved mein prakriti varnan: Ek adhyayan. Agra University.

3. Diksha, Saroj Kumari. A study of etymologies of Aitareya and Taittiriya Brahmanas. University of Delhi.

4. Dwivedi, Gopi Krishna. Mahabharat mein yudhniti. University of Saugar.

5. Gupta, Asha Rani. Shri Durga saptshati aur uske bhashyon ka vishleshnatmak evam tulnatmak adhyayan. Agra University.

6. Gupta, Meera. Sanskrit ke panch-mahakavyon mein utpreksha. University of Delhi.

7. Kothari, Purnima. Prasamarati our umashsati. University of Rajasthan.

8. Pathak, Deo Nath. Maitrayani Samhita ka adhyayan. University of Gorakhpur.

9. Sapre, Chhaya. Bhanudatt Mishra kee rachanaon ka samalochanatmak adhyayan. University of Jabalpur.

10. Sharma, Girish Kumar. Nardiya Sanhita ke jyotish mantra ka samikshatmak adhyayan. Agra University.

11. Sharma, Nirumpa. Sanskrit natakon mein lokdharmi evam lokmanchiya tatwa. Agra University.

12. Sikri, Krishna. Sanskrit mahakavyon mein vir ras from 1st century to 12th century. University of Delhi.

13. Upreti, Jai Datt. Rigved mein Indra. Garhwal University.

Punjabi

1. Amarjit Singh. Forms of versification and poetry in the Adi Granth: A critical study. Panjab University.

2. Gurmohan Singh. Prose writings of Sodhi Meharban. Panjab University.

3. Manjit Singh. Socio-cultural aspects of Punjabi Sufi poetry: Up to 18th century. Panjab University.

Hindi

1. Acharyulu, Kanduri Venkata Satyanarayan. A comparative study of modern lyrics in Hindi and Telugu. Andhra University.

2. Anil Kumar. Bhaktishastriya siddhanton ka Hindi bhaktikavya per prabhav. Agra University.

3. Arora, Kanta. Hindi kahani ka mulyankan: Vyashti bodh aur smashti bodh ke sandarbh mein, 1950 se 1975 tak. Panjab University.

4. Bamezai, Neeta. Navlekhan ke saundarbh mein Mohan Rakesh ka katha sahitya. University of Kashmir.

5. Bashu Saheb, K.S. The depiction of civic life in Hindi novels written after independence. Sri Venkateswara University.

6. Chhabia, Asha. Sanskrit mein Shiv katha ka vikas. Garhwal University.

7. Dubey, Asha Lata. Premchand parampara ke pariprekshya mein Amritlal Nagar ke upanyas sahitya ka anusheelan. University of Saugar.

8. Gupta, Mahesh Chandra. Rajasthan ke prashasnik karyon mein Hindi ka prayog, 1857 se 1978 isvi tak. Agra University.

9. Kameswari, Allakki Venkata Lakshmi. A comparative study of nature in modern poetry of Hindi and Telugu. Andhra University.

10. Kulkarni, Jagannath Venkat Rao. Hindi shabadh koshon ka udbhaw aur vikas. Osmania University.

11. Luthra, Santosh. Premchand aur Prasad ke sahitya kee mulvarti chetna. University of Delhi.

12. Mahajan, Santosh. Gurumukhi lipi mein uplabdh Panjab ka Hindi Ram kavya. Panjab University.

13. Mathur, Sandhya. Pragativad kavya mein prakriti chitran. Agra University.

14. Meena Rani. Prasad ke kavya mein shabd shilp evam abhivyakti yojana. Agra University.

15. Narang, Manju. Kalidas aur Bhas ke natakon kee kathaon ke stroton ka vivechanatmak adhyayan. Garhwal University.

16. Nautiyal, Kushum. Garhwali lokgeeton mein nari. Garhwal University.

17. Pandey, Jyotsna. Muktibodh ka kavya: Shaili tatwik adhyayan. University of Rajasthan.

18. Prasad, Janeshwar. Ritikaleen chitrakala, vastukala aur ritikavya: Tulnatmak adhyayan. University of Saugar.

19. Raj, R. Samuel. Swatantrottar Hindi upanyas sahitya mein nari kathakaron dwara nari ka adhyayan. Agra University.

20. Rajendra Pratap. Swatantrayottar Hindi upanyason mein naitikta ke vibhin pratiman. University of Delhi.

21. Ranjeet Singh. Parmal Raso ka aitihasik, sanskritik evam sahityik adhyayan. Agra University.

22. Savitri Devi. Dinkar ka kavya: Ek mulyankan, romantic bodh ke sandarbh mein. Panjab University.

23. Sethi, Sarita. Sumitranandan Pant aur unke kavya mein jiwandarshan. Garhwal University.

24. Sharma, Ajai Kumar. Chhayavadottar shrinagarparak gitikavya ka anusheelan. Agra University.

25. Sharma, Bangali Prasad. Swatantryottar Hindi Gujarati aitihasik upanyason ka tulnatmak adhyayan. Agra University.

26. Sharma, Raj Shekhar. Samajik aur manovaigyanik pariprekshya mein Kaikeyi ke charitra ka vikasatmak adhyayan. Garhwal University.

27. Sharma, Ravindra Kumar. Sur ke sanvad tatwa. Agra University.

28. Sharma, V.S. Adhunik Hindi kavita mein prakritvad 1937 se 1975 tak. Agra University.

29. Singh, Govind Pal. Mahadevi Verma ke kavya mein saundarya bhavana. Agra University.

30. Singh, S. Tomba. Hindi aur Manipuri kee vyakarnik kotiyon ka tulnatmak adhyayan. Agra University.

31. Subrahmanyam, Kota. Influence of Marxism on Hindi and Telugu novels: A comparative study. Andhra University.

32. Thukral, Uma. Kabirpanthi sahitya ka alochanatmak adhyayan. Garhwal University.

33. Tiwari, Kapil Kumar. Nai Hindi Kahani mein samajik chetana: Parikalpana aur swarup. University of Saugar.

34. Tiwari, Rukmani. Nai kavita ke preerna strot aur uskee pramukh previttiyon ka anusheelan, 1955 se 1970. University of Saugar.

35. Trivedi, H.M. Swatantroyottar Hindi natakon mein samasya nirupan. Saurashtra University.

36. Upadhayaya, Vijai Prakash. Adhunik Hindi sahitya mein Gandhi charitra: Ek vishleshnatmak adhyayan. Agra University.

37. Veena Kumari. Swatantroyottar Hindi ke pramukh upanyaskaron ke naikik mandand. University of Kashmir.

38. Vijayalakshmi Kumari. Nannapanoni. A comparative study of one act plays in Hindi and Telugu. Andhra University.

39. Vinod Parkash. Mahakavi Keshavdas kee kritiyon ka chhand shastriya adhyayan. Garhwal University.

40. Vishwajeet, J. Chayavadottar Hindi kavya per yudhon ka prabhav. Osmania University.

41. Visweswara Rao, Jammalamadaka Kasi. Comparative study of the trends of Saiva Kavyas in Hindi and Telugu. Andhra University.

Urdu

1. Mohammad Ahsan. Nasikh: Fikr-o-Fan. University of Gorakhpur.

Maithili

1. Jha, Satyendra. Kavishwar Chanda Jha ka Maithili rachana sabha mein samayik tatwa. University of Calcutta.

Marathi

1. Kulkarni, Vasant Damodar Rao. A semantic study of Vachaharan by Damodar Pandit. Osmania University.

Persian

1. Shahid Iqbal. Indo-Persian literature, 1161 A.H./1748 A.D.—1221 A.H./1806 A.D. University of Delhi.

Tamil

1. Krishnan, M.A. Cekilar's concept of society. University of Calicut.

Kannada

1. Siddaiah, Pallagatti Math. The philosophical and literary values in the works of Nijaguna. Karnatak University.

Telugu

1. Vara Rao, P. Telangana liberation struggle: Telugu novel. Kakatiya University.

Geography

1. Garg, Hari Krishna. Locational analysis of industries in the national capital region. Agra University.

2. Gautam, Asha, Urbanisation in Rohilkhand division, 1901-1971. Agra University.

3. Prakash, Shakuntala. A geographical study of fisheries in M.P. Agra University.

4. Yadav, N.S. Nodal region of Mathura: A functional interpretation. Agra University.

History

1. Chandawat, P.C. Surajmal Jat and his times. University of Rajasthan.

2. Chandrashekhar, S. Administration of the princely state of Mysore between 1918-1940. Bangalore University.

3. Chaubey, Gopalchandra. History and tradition of the Buddhist monuments of Nalanda. University of Calcutta.

4. Chohan, Amar Singh. The Gilgit agency, 1877-1931. University of Jammu.

5. Mishra, Chittaranjan. Freedom movement in Sambalpur, 1827-1947. Sambalpur University.

6. Sen, Ratna, Art and architecture of Tripura. University of Calcutta.

7. Sharma, Kashi Ram. The socialist education campaign in China, 1962-66. University of Delhi.

8. Shukla, Manjul. Prachin Bharatiya kala ke katipay alankaranon evam abhiprayon ka adhyayan. University of Gorakhpur.

INDIAN SCHOOL OF MINES

DHANBAD-826004

Adv. No. 420009/80 **January 12, 1981**

The Indian School of Mines (deemed to be a University under the UGC Act) invites applications for the following posts :

1. **One Senior Laboratory Technician** : For the Deptt of Applied Geophysics. QUALIFICATIONS—B Tech/B E in Electronics or equivalent or a Master's degree in Physics with specialisation in Electronics. (Essential). (ii) Experience in Electronics/Instrumentation for three years (Desirble).
2. **One Technical Assistant** : for the Deptt of Mining Engg (for the Rock Mechanic Laboratory). QUALIFICATIONS (i) Diploma in Mech Engg (Essential). (ii) Two years experience in a Mechanical Workshop (Essential). (iii) Experience in preparation of rock-specimens in a research/testing/educational laboratory (Desirable).
3. **One Scientific Assistant** : for the Deptt of Mining Engg. QUALIFICATIONS—(i) B Sc with a minimum of three years experience in Analytical Chemistry. (Essential). Experience in taking mine air and dust samples, Mine Ventilation readings, flammability and crossing point temperature determination of coal, use of Haldane apparatus and gas chromatograph (Desirable).
4. **One Scientific Assistant (Reprography)** : for the Central Library. QUALIFICATIONS—(i) Intermediate with one year certificate in Library Science. (Essential). (ii) Training in handling Majox 121 and Microfilming machine of C.Z. (Essential). (iii) Five years experience in Reprographic Section in a Technical Library of standing and in Photography (Essential). (iv) Knowledge in typewriting and good handwriting (Desirable). Other things being equal preference will be given to SC/ST candidates.
5. **One Senior Technical Assistant** : (Lien vacancy for 2 years —for the Deptt of Engineering and Mining Machinery. QUALIFICATIONS—(i) Diploma in Mech Engg and five years experience in maintenance of Elec equipment (like elec drives, transformers) or Mech equipment. Preference will be given to candidates having experience of handling Mech Lab experiments in an Engg College.

Pay Scales : Rs. 650-1200 for post at serial 1 and Rs. 550-900 at serial 5 and Rs. 425-700 for rest in addition, allowances admissible as per Govt of India Rules sanctioned from time to time. Total emoluments currently amounts to Rs. 1053.30 at Rs. 650/- stage and Rs. 892.80 at Rs. 550/- stage and Rs. 711.70 at Rs. 425/- stage.

Age Limit : Not more than 30 years for Senior Lab. Tech and STA and 25 years for TA/SA. Upper age limit relaxable by five years for SC/ST candidates. Age limit also relaxable in the case of persons otherwise considered specially suitable.

General : Other things being equal, preference will be given to SC/ST candidates.

Further details and prescribed applications forms are obtainable from Registrar, Indian School of Mines, Dhanbad-826004 on sending a self-addressed envelope of size 30 cm x 12 cm affixed with postage stamps of the value of Rs. 3.45 only. Completed application forms should reach the Registrar on or before **February 16, 1981**. CANVASSING IN ANY FORM WILL BE TREATED AS DISQUALIFICATION.

S.P. Varma
REGISTRAR

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from periodicals received in AIU Library during January, 1981

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Marton, Ference. "Skill as an aspect of knowledge". *Journal of Higher Education* (Ohio). 50(5); Sept-Oct 79: 602-14.

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Bereday, George Z.F. "Democratisation of higher education". *Educational Documentation and Information* (210); 1979: 5-21.

Bloomer, R.G. "The role of the Head of Department: Some questions and answers". *Educational Research* 22(2); Feb 80: 83-96.

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Padmanabhan, C.B. "Financial Management of agricultural universities in India". *University News* 18(22); 15 Nov 80: 627-9.

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Gurumurthy, K.G. "University education and rural development". *Journal of Higher Education* (Delhi) 4(3); Spring 79: 353-63.

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Wagner, Daniel A. and Lotfi, Abdelhamid. "Traditional Islamic education in Morocco: Sociohistorical and psychological perspectives." *Comparative Education Review* 24(2Pt. I); June 80: 238-51.

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JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI-110067

Advertisement No. Aca. III/1/81

Applications are invited for the following posts :

I. School of International Studies Centre for South, South-East and Central Asian Studies

1. Associate Professor/Fellow OR Assistant Prof in Pakistani Studies.

Associate Professor/Fellow

Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's degree in any of the Social Sciences or its equivalent qualification from an Indian/Foreign University;

(b) A Doctor's degree or published work of an equally high standard in the field o Pakistani Studies;

(c) About five yearrs' experience of teaching and/or research in the field of Pakistani Studies; and

(d) Knowledge of Urdu.

Desirable Qualifications

Some experience of guiding research in South Asian Studies.

Assistant Professor

Essential Qualifications

(a) Consistently good academic record with at least a high Second class Master's degree in any of the Social Sciences or its equivalent qualification from an Indian/Foreign University;

(b) A Doctor's degree or published work of an equally high standard in the field of Pakistani Studies; and

(c) Knowledge of Urdu.

Desirable Qualifications

Some teaching and/or research experience in the field of Pakistani Studies.

Note

There is only one vacancy of an Associate Professor/Fellow; the University will consider applications for both Associate Professor/Fellow and Assistant Professor

Centre for Studies in Diplomacy, International Law & Economics

2. Assistant Prof. in International Economics

Essential Qualifications

(a) Consistently good academic record with at least a high 2nd class Master's degree in Economics or its equivalent qualification from an Indian/Foreign University; and

(b) A Doctor's degree or published work of an equally high standard.

Desirable Qualifications

Adequate knowledge of Mathematical and Statistical methods and some teaching experience.

II. School of Social Sciences

Centre for Historical Studies

3. Assistant Professor in Medieval History (Temporary against leave vacancy)

Essential Qualifications

(a) Consistently good academic record with at least a high 2nd class Master's degree in Medieval History or its equivalent qualification from an Indian/Foreign University; and

(b) A doctor's degree or published work of an equally high standard.

Desirable Qualifications

Specialization in Economic History of Medieval India.

Provided that in the case of Assistant Professors if the Selection Committees are of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (a) above.

Provided further if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable a person possessing a consistently good academic record (weightage being given to M. Phil or equivalent degree or research work of quality) may be appointed provided he/she has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements.

Centre of Social Medicine & Community Health

4. Research Assistants-2

The posts are tenable for one year in the first instance and are reserved for Scheduled Castes/Scheduled Tribes candidates.

Social Scientists as well as Physicians can apply.

Qualifications for Social Scientists

1. A good Master's degree in Sociology, Social Anthropology or Psychology;
2. A Master of Community Health Degree; and
3. Experience of Community Health Research.

Qualifications for Physicians

1. A good M.B.B.S. Degree from recognised University; and
2. Interest in Community Health.

III. Library

5. Professional Assistant

Reserved for Scheduled Caste/Scheduled Tribe candidate.

Essential Qualifications

1. Good second class in M.A./M.Sc. M.Com. and degree in Library Science;

or

2. Good second division in B.A./B.Sc./B.Com. and degree in Library Science and working experience of 4 years' in a reputable Library.

Scales of Pay

1. Associate Professor/Fellow Rs. 1200-50-1300-60-1900.
2. Assistant Professor : Rs. 700-40-1100-50-1600.
3. Research Assistant : Rs. 550-20-650-25-750.
4. Professional Assistant : Rs. 550-25-750-EB-30-900.

Age limit for posts Nos. 4 & 5 : 45 years.

Relaxation in any of the qualifications may be made (a) in favour of persons of eminence or of high academic/professional distinction and (b) in exceptional cases where adequately qualified persons are not available but are otherwise found suitable for the respective positions. It will also be open to the University to consider the names of suitable candidates who may not have applied.

The selected candidates will be expected to participate in the teaching and research programmes in the concerned disciplines in other Schools of the University as well as in the programmes offered in their own Centres of Studies.

Normally appointment of Fellows is made on contract basis for a period ranging from one to three years.

Benefits of C.P. Fund-cum-Gratuity/G.P. Fund-cum-Pension-Cum-Gratuity are available as per University rules.

Persons already in employment should route their applications through proper channel.

Due consideration will be given to candidates belonging to Scheduled Caste/Scheduled Tribe at the level of Assistant Professor.

Second class (mail) rail fare (both ways) will be paid to candidates invited to appear for interview from coutstation by the shortest route.

Applications separate for each post, on the prescribed form, obtainable free of cost from the Section Officer (Academic Branch-III) of the University by sending him a self-addressed and stamped envelope (affixing postage stamps worth Rs. 02.85) or 23 cm x 10 cm size, should each the Deputy Registrar (Academic), Jawaharlal Nehru University, New Mehrauli Road, New Delhi-110067, latest by **13 February 1981**.

Candidates from abroad, applying for the faculty positions, may apply on plain paper, (but their applications should reach the University by the last date) furnishing all the relevant informations such as their name, date and place of birth, marital status, nationality; state of domicile; postal and permanent addresses; father's name and address; academic and professional attainments; full details of (a) publications, and (b) research projects undertaken; language(s) known; dtails of visits to foreign countries; and the names and addresses of at least two persons well acquainted with the candidate's professional work who should also be requested by the candidate to forward to the Deputy Registrar (Academic) confidential report concerning the candidate.

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University
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A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH FEBRUARY 15, 1981

Dr. M. S. Swaminathan, Member, Planning Commission, delivering the valedictory address at the Orientation Programme for N.S S. Key Personnel organised by the National Institute of Educational Planning and Administration in New Delhi.

INDIAN INSTITUTE OF TECHNOLOGY
KHARAGPUR

Advertisement No. R/1/81

Applications are invited for the undermentioned posts at Indian Institute of Technology, Kharagpur (West Bengal).

Post

I. (a) **Technical Assistant — Agricultural Engg. Department—One post**

(b) **Technical Assistant — Cryogenics Engg. Centre — One post Reserved for Scheduled Tribe.**

(c) **Technical Assistant — Physics Department — One post Reserved for Scheduled Caste.**

Scale of Pay

Rs. 425-15-500-EB-15-560-20-700/- plus D.A. as admissible.

Age : Preferably not below 20 years.

Qualifications & Experiences

Intermediate Science or equivalent plus all round workshops and Lab. training for not less than 5 years **or** Bachelor's degree in Science or a Diploma in specified branch of a study plus adequate Lab. and Workshop training.

Job requirements

(a) for the post of T.A. (Agril. Engg.)

(1) Ability to handle Agricultural Power Units, Machinery, Equipments Accessories and Instruments. (2) Ability to assist the U.G. and P.G. students of Agricultural Engineering in their project works. (3) Other qualifications as per Institute norms.

(b) for the post of T.A. (Cryo. Engg.)

Must have experience in use and maintaining Cryogenic Production machine. Sound knowledge of Repairing electric and Electronic Instrument.

(c) for the post of T.A (Physics)

(1) Running and maintenance of mechanical workshop like lathe, drilling, shaping, grinding, milling machines etc. (2) Fabrication of complicated and sophisticated instruments or parts of such instruments requiring mechanical machining. (3) Fitting, Welding forging etc. of machine parts as and when necessary. (4) Perform such other duties as designed by the Head of the Department.

II. **Horticultural Assistant—Agricultural Engg. Department—On post.**

Scale of Pay

Rs. 425-15-500-EB-15-560-20-700/- plus D.A. as admissible.

Age : Preferably not below 20 years.

Qualifications & Experiences

Essential

(1) Must be a Matriculate or equivalent. (2) Experience for at least 3 years such as Horticultural work, layout of orchards and maintenance of gardens and raising up nurseries etc.

Job requirments

Attending to general horticultural work including raising up nurseries, layout and maintenance of orchards gardens, lawns, roads and parks and other recreation facilities. The job also requires procurement of stores and seed materials connected with the work and management of labour.

III. **(a) Mechanic Gr. 'A' (Key Punch Operator) — Computer Centre — One Post.**

(b) Mechanic Gr. 'A'—Electrical Engg. Department—One post Reserved for Scheduled Tribe.

Scale of Pay

Rs. 380-12-500-EB-15-560/- plus D.A. as admissible.

Age : Ordinarily not more than 35 years.

Qualifications & Experiences

Essential

(1) Good general education preferably Matriculate or equivalent. (2) 15 years experience including apprenticeship in a recognised workshop relaxable in case of higher technical proficiency. (3) Ability to manufacture, construct and erect from working drawings and ability to make simple dimensioned sketches. (4) Ability to work within prescribed tolerances. (5) Knowledge of Hindi and Blue Printing reading. (6) Ability to impart instructions (Desirable).

Job requirements

(a) for the post of Mech. 'A' (Computer)

(1) Ability to give 14000 Key depression IBM 029/026 machines (2) Knowledge of operating and repair of unit record m/cs.

(b) for the post of Mech. 'A' (Elec. Engg.).

Experience in testing, repairing, operation and maintenance of electronics instruments and equipments such as VTVM, CBO, Oscillators power supply unit and digital units etc.

IV. (a) **Mechanic Gr. 'B'—Workshop—Two posts**

(b) **Mechanic Gr. 'B'—Press—One post.**

(c) **Mechanic Gr. 'B' (Switch Board Operator—Estate Maintenance Unit—One Post (Reserved for Scheduled Caste).**

Scale of Pay

Rs. 330-8-370-10-400-EB-10-480/- plus D.A. as admissible.

Age : Not less than 25 years.

Qualifications & Experiences

Same as for Mech. Gr. 'A' except that the length of experience should not be less than 8 years.

Job requirements

(a) **for the post of Mech. 'E' (Workshop)**

(1) Should have knowledge in all types of joinery and cabinet making works. (2) Should be able to work independently from Blue-prints. (3) Should be able to calculate the quantity of material required for making of different furniture. (4) Knowledge on wood working machine and of polishing work will be considered as an additional qualification.

(b) **for the post of Mech. Gr. 'B' (Press)**
Desirable:

(1) Should have passed licentiate examination in Printing and Technology. (2) Should have completed course of Castor & Key Board Operator conducted by Mono Type Corporation or other recognised Agency. (3) Should have passed School Final examination with 8 years working experience or VIII Class pass with 10 years working experience as Castor and Key Board Operator.

Job requirements

(1) Should have proficiency in operation of Mono Castor and Key Board Equipments. (2) Should have fair knowledge in the day to day maintenance and minor rectification work of Mono Castor and Key Board Equipments. (3) Should have worked on the Castor as well as Key Board independently giving the standard production.

(c) for the post of Mech. Gr. 'B' (Estate).

(1) To operate the switch gear both H.T. & L.T. and to give shut-down as per I.E. rules. (2) To diagonise the fault of the switch gear and be able to rectify the same independently. (3) To take reading of the different meter and to maintain the log book and to write report in English about breakdown. (4) To attend overhead break-down work. (5) To attend round the clock duty including night shift. (6) Any other duties assigned by the authority.

N.B.

The qualification regarding experience is relaxable at the discretion of the competent authority in the case of candidates belonging to the Scheduled Castes or Scheduled Tribes, if any stage of selection, the competent authority is of the opinion that sufficient number of candidates from these communities possessing the requisite experience are not likely to be available to fill up the vacancies reserved for them.

Applications on plain paper, stating Name, Father's Name, Present Address, Permanent Address, Qualifications & Experience in detail, Date of birth, Nationality etc. in English accompanied with an application fee (non-refundble) of Rs. 3.00 (Re. 0.75 for SC/ST) for Category No. I and II and Re. 1.00 (Re. 0.25 for SC/ST) for other categories payable by same of crossed Indian Postal Order to the Indian Institute of Technology, Kharagpur at Kharagpur-2 Post Office should reach the Registrar, I.I.T., Kharagpur (West Bengal) by the **25th February, 1981**.

Candidates belonging to Scheduled Caste/Scheduled Tribe community must enclose attested copies of caste certificates from the competent authority.

Applicants who are in the employment of Government/Semi-Government organisations or of any Government undertaking must send their applications through proper channel.

A.K. Sur
REGISTRAR

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Editor: ANJNI KUMAR

Modern Biology And Medical Advance

V. Ramalingaswami*

Fundamental biology has made greater strides during the past quarter of a century. Our knowledge of cellular and molecular functioning is now quite profound. Ruthless reductionism, the essential pathway of science, has paid handsome dividends. The newer techniques of molecular biology, cell-biology, genetics and immunology have played a key role. Concentration on simplest models such as viruses, bacteria and cells isolated from complex organs was of strategic importance. Of particular significance was the ability to separate pure populations of single species of molecules and even cells from complex and largely uninterpretable mixtures. As a result, we now have deeper insights into the structure and organisation of the constituents of life processes, of the evolution of form and function in living organisms, of differentation of cells and of genetic polymorphism. Perhaps within this decade, we will see a much more elaborate and sophisticated picture of the chemistry of life.

The breath-taking events in molecular biology in the past few years have come sooner than anticipated. Hybridoma technology is no more than five years old, recombinant DNA technology is no more than seven years old. It is now obvious that it is possible to reorder genetic material at will, and to grow unlimited copies of genes of humans and animals in bacteria. Bacteria can be manipulated to synthesise biological materials that evolution has assigned exclusively to be made by the human species. We can now say that modern biology will exert a considerable influence on the health and well being of mankind in the years to come.

The first intellectual bonuses—the human growth hormone, insulin and interferon

The first intellectual bonuses came when it became obvious that scarcely available substances such as human insulin and human growth hormone could be made by bacteria through the gene cloning techniques apparently in unlimited quantities. Human insulin and Human growth hormone have already been made in the laboratory by the recombinant DNA technology. So also human interferon, the glycoprotein which seems to be the key immunoregulatory signal for the Natural Killer (NK) cell activity. The growth hormone gene was inserted into *E. coli* and the bacteria were made to synthesise the harmone. This recombinant-derived human growth hormone was able to produce the same amount of growth in growth hormone deprived animals as natural growth hormone isolated from human pituitaries. This should provide almost limitless supplies of this hormone for treating

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**Director-General, ICMR, New Delhi.*

growth failure in children and perhaps also for improving the healing of wounds and fractures.

The *human insulin* produced by genetic engineering compares very favourably with porcine insulin that is being used in clinical practice today when tested in healthy human subjects. Insulin—producing cells have been transferred successfully from rats to mice in whom diabetes has been produced experimentally and the diabetic mice have been restored to normal.

Interferon is being hailed as an extraordinarily potent substance which protects against vituses and slows down growth of cells thus offering a tool for the treatment of cancer as well. It is generally regarded as the wonder drug of tomorrow. Up until now, this unique protein was so scarce that it cost 150 US dollars for a single dose and 30,000 US dollars for a full course of treatment. It was being produced by the traditional processes using human cell cultures. The possibility of genetically engineered bacteria producing interferon in unlimited quantities is now established. Apparently the low yields have now been improved considerably. There is a spectrum of interferon proteins and a number of different genes code for them. A great deal of very careful clinical experimentation to evaluate the usefulness of interferon remains to be done. The world is waiting for the interferon story to unfold itself.

Genes and minigenes

Recent work has shown that the genes of animal viruses and of animals including man occur in pieces spread out along the DNA. There is now better understanding of how these genes occurring in different places are expressed. Each gene fragment, designated by Dr. Gilbert, the 1980 Nobel Prize winner, as minigene probably codes for a functional part of a protein. Gene fragments probably code for specialized cell products like globin, insulin and antibodies. Gene regulation is now becoming more clearly understandable.

Monoclonal antibodies

Equally spectacular are the possibilities in the field of monoclonal antibodies produced by hybridoma technology. They have a number of uses in the diagnosis, epidemiological study, treatment and prevention of a wide variety of viral, parasitic and bacterial diseases. They would enhance organ transplantation capabilities by worldwide standardisation of tissue typing. Monoclonal antibodies would revolutionise the traditional methods of serological diagnosis and serum treatment. They would help in characterising the antigenic complexity of cell surfaces and detect differentiating antigens in a number of species.

Monoclonal antibody is a well defined chemical reagent that can be reproduced at will, in contrast to a conventional anti-serum which is a variable mixture of reagents and can never be reproduced, once the original supply has been exhausted. These antibodies can identify new surface molecules and at the same time distinguish amongst cell populations. The monoclonal approach to characterising differentiation antigens makes it possible to find out the stage at which an antigen is expressed. The Cascade purification method is being applied to characterise the antigenic complexity of cell surfaces.

Monoclonal antibodies are replacing conventional anti-sera in standard kits for radio-immunoassay procedures. An extraordinarily wide range of applications is envisaged including the study of receptors for hormones and neurotransmitter substances. A very major impact is likely to be exerted by the monoclonal antibodies being used as passive immunising agents for protecting against a variety of infections. They would pave the way for the development of improved vaccines. They have already proved to be of immense value in the field of malaria and have been shown to provide protection in animals against lethal challenges with malarial parasites.

Because of their extreme specificity, the monoclonal antibodies can be used to identify and purity molecules of interest in almost any field of biology. They allow one to be able to differentiate between strains of viruses. Hybridoma technology is a cell fusion technology which provides continuous antibody forming cell-lines. Hybridoma cell is produced as a result of fusing an antibody producing cell with a tumour cell. This hybridoma cell grows and divides endlessly and all the progeny from the original hybridoma cell secrete the same pure antibody. They are extremely uniform and reproducible. They have been made upto now by the mouse myeloma cells but they have just recently been reported to have been made from human cells also. These antibodies can attach themselves to important sites on cell surfaces thus acting as guided missiles. The antibodies selectively attach themselves to certain cells and can deliver a dose of destructive material to these cells. The material can be a powerful anti-cancer drug or a toxin and the rest of the body tissues and cells are nor affected.

The challenge of tropical communicable diseases

It is in the control of some of the intractable tropical communicable diseases that I believe lies the real challenge to molecular biology. Confronted as we are with a situation in which: a) *Plasmodium falciparum,* the most dangerous form of malarial parasite, is resistant to the most widely used antimalarial—chloroquine; b) several species of mosquitoes that transmit malarise are resistont to the commonly used insecticides on which we are dependent today for mass use; c) for mass control of leprosy, we depend upon only one drug "dapsone" against which the leprosy bacillus is showing increasing evidence of resistance: and d) we have only one effective micro-filaricidal compound, thio-carbamazine to fight filariasis—these reflect the technologica despair which surrounds the whole scene of control of tropical communiciable diseases especially malarial filarisis and leprosy. It is through a better under, standing of that biology of these parasites and microbes that we can hope to develop new strategies and new approaches for their control. We have to understand the tricks that the parasites play. How do they avoid host defences? How do they acquire drug resistance? Modern biology should enable us to attack the vulnerable sites in the life cycle of these parasites. The technologies that I have described should enable us to prepare pure parasite antigenic material. Parasite genes coding for important antigens could be identified and transferred to harmless bacteria, getting the bacteria to make an antigenic material which can then be used for diagnostic as well as prophylatic purposes. Modern biology should enable us to block the attachment of parasites to specific host cell membrane receptors making it difficult for them to survive and multiply. A drug may be linked to a molecular carrier preferentially homing to vulnerable sites in the parasite. Drug-liposome and drug-antibody complexity offers interesting possibilities.

Gene treatment

There are possibilities in the future of being able to correct atleast some genetic defects through the techniques of molecular cloning. Single gene errors may be correctable. Sickle cell anaemia is due to a single variation in a group of genes involved in the synthesis of haemoglobin. Gene treatment is in the realm of possibility of molecular biology, but there is a long way to go from the present position to the repair of genetic defects in intact human beings. Single genes have already been injected into defective living cells in culture and have cured those cells of genetic defects.

Modern biology in agriculture and industry

Genetic engineering might make it possible to increase the efficiency of photosynthesis and to improve nitrogen fixation. It may also be possible to identify genes that make plants more tolerant of saline than others. The importance of this technology is obvious considering the problem of increasing salinity of our soils following irrigation. The disposal of agricultural and industrial wastes could be accomplished with useful by products by the use of bio-technology. Fermentation industry can benefit enormously by the gene splicing technology for large scale production of aminoacids, nucleorides, organsc acids, etc. It is possible to stitch into the DNA of industrial micro-organisms the human genes to render the microbes capable of producing vast quantities of widely needed substances.

Chemical transformations in industry are normally performed at high temperatures and high pressures needing high inputs of energy. The gene technologies will be able to accomplish the same thing with low energy inputs because the work can be done at room temperature and at atmospheric pressure. The problem of wastes will probably be minimised in the biological production systems.

Brain chemistry

There has been a quantum jump in our understanding of brain chemistry in recent years. Until 10 years or so ago we were "limping along" on a few classical neuro-transmitters and electro-physiology was the main tool for studying brain function. No doubt much has been learnt by these techniques. Today, there are literally dozens of neuro-transmitters, neuro-peptides and neuro-hormones discovered which constitute the biochemical circuitry of the brain. There are expectations that the endorphins and the encephalins may pave the way for a possible solution to intractable pain and drug addiction. There are hopes of a better understanding of human feelings and human behaviour, of learning and memory, of sleep and of various levels of consciousness. The brain's medicine chest has been atleast partially opened and this has unfolded the brain's incredible chemical repertoire. Simultaneously, there are major advances taking place in psychotropic drug development. The screening of potential psychotropic drugs has moved from the laborious animal testing, the old black box approach, to the world of molecular biology. The assay of drugs for their effects on behaviour is done on isolated brain cells. The area is undoubtedly full of promise for an understanding of how the brain functions, but in terms of practical benefits to cater to the needs of "choose your mood" society, one should not expect results around the corner.

Hepatitis B vaccine and liver cancer

I cannot let this occasion pass without referring to the developments leading to hepatitis B vaccine. The vaccine is itself the outcome of basic research in biology and clinical medicine. In October last year, a report by Dr. Szmuness and his colleagues indicating the remarkable success of a carefully controlled hepatitis B vaccine trial in a high risk population of homosexuals in the United States has been regarded as a milestone in annals of preventive medicine. Hepatitis B is of great public health importance in our country as well as in many developing countries. It has been estimated that there are as many as 200 million people who carry the hepatitis B virus in their blood, known as chronic carriers. The vaccine contains 23 nm hepatitis B surface antigen particles which are derived from the plasma of healthy carriers and inactivated with formaldehyde. Infection with this virus can lead to a form of chronic liver disease including cirrhosis and there is also an association with primary liver cancer. The work done by Prof. N. C. Nayak in our country has shown the close association between primary carcinoma of the liver and the presence of hepatitis B surface antigen in nearly 100 per cent of all cases of primary liver cancer both in our country and in Africa. The vaccine against hepatitis B can be of great value in protecting persons who constitute high risk groups against this form of hepatitis. These are persons who receive multiple blood transfusions and patients and staff working in the kidney transplantation and haemodialysis units.

There is considerable evidence to suggest that infection with hepatitis B virus is an important precursor to the development of liver cancer. There is strong geographic correlation between hepatitis B infection and liver cancer and there is also some evidence to indicate that a substantially large proportion of mothers of patients with liver cancer are

(*Contd. on page 121*)

CAMPUS NEWS

Radical changes suggested in polytechnic education

Prof. G.R. Damodaran, Vice-Chancellor, Madras University, appealed to the principals and teachers of polytechnics to bring about radical changes in the system of education to suit the changing needs of the community, the society and the country. Prof. Damodaran, was inaugurating an in-country course on "Evaluation of Technician Education System—A system approach" sponsored jointly by the Colombo Plan Staff College for Technician Education, Singapore and the Technical Teachers' Training Institute, at the TTTI, Adyar. He wanted the polytechnics, teachers and administrators to take note of the rapid technological, sociological and economic changes that had taken place in the last few years and adopt themselves quickly to these changes. He pointed out that sophisticated equipment in hospitals were lying idle for want of trained technicians to maintain them properly. New types of equipment instruments and machines were coming into use. Hence change in approach and thinking on the part of all concerned had become necessary.

Mr H.C. Kothari who presided over the seminar stressed the need for closer collaboration between technological institutions and industry. He also called for change in emphasis from theory to practical knowledge. Industry was going in for sophisticated equipment and it was necessary they had trained technicians to handle them.

Prof T. Subba Rao Principal TTTI while welcoming the delegates said this country-wide programme had been organised to pool the expertise and experience of the leaders operating the technician education system in the country, 25 senior persons including Directors of Technical Education and Principals of polytechnics participated in the 12 day programme.

All India seminar on new horizons in communications at Hyderabad

An All India Seminar on "New Horizons in Communications was conducted at the Department of Electronics and Communication Engineering, Osmania University, Hyderabad. It was sponsored by Professor Nair Commemoration Committee, Department of Electronics and Communication Engineering of Osmania Universityand co-sponsored by University Grants Commission, Electronics Corporation of India Ltd. Institution of Electronics and Telecommunications Engineers, Kerala State Electronics Development Corporation Ltd. and Osmania University. The aim of the Seminar was to present the latest advances in Communications through a set of invited lectures from various experts in the field. This will help to disseminate expert information to young scientists and engineers, who are working in the general field of Communication Engineering and enthuse them for further research work in this very important field.

Special lectures on information theory, defence communications, trends in communication networks, remote sensing, computor communications, fibre optic systems, education for communication engineering in the eighties and human communications were delivered by outstanding Professors and Heads of Institutions. A panel discussion on "Telecommucations and Socio-economic Development" under the Chairmanship of Professor S. Sampath Member, UPSC was also arranged during the seminar.

PU weightage for internal students

The Panjab University Syndicate at its meeting held at Chandigarh decided to give a weightage of 10 per cent to the Panjab University students for admission to its various departments and to postgraduate classes in affiliated colleges. The Syndicate approved the recommendation of a committee that a weightage of 5 per cent in marks should be given to the sons, daughters and spouses of military and para-military personnel who were killed or incapacitated in action for admission to the engineering and technological institutions affiliated to the university.

No affiliation to new colleges

Dr. Jagannath Mishra, Chief Minister of Bihar, said in Patna that no new college would be granted affiliation up to degree standard in order to raise academic standard in the state. He was inaugurating the newly constituted Bihar Intermediate Education Council. He said that the government was not against expansion of education but at the same time it would not allow mushroom growth of sub-standard colleges in the state. Mr. Nasiruddin Haider Khan, Minister of Education presided.

The Chief Minister said that the government would now allow opening of inter-colleges only. The Intermediate Education Council would grant recognition to the new inter-colleges after thorough verification. Stating the purpose of the Council he said that intermediate education must be separated from the university education. Universities were meant for post-graduate teaching and research only. He expressed the hope that the Intermediate Council would act as a link between secondary education and university education.

He pointed out that the government had decided to bifurcate intermediate education from universities in view of the wide expansion of higher education. He said that intermediate education would be imparted in the existing degree colleges for the time being. The Council would prepare uniform syllabus for intermediate education for the whole state and it would also conduct intermediate examinations from 1983.

Dr. Mishra said that the government had taken a number of steps during 'the education purification year to raise the standard of teaching and examinations. He said that 108 affiliated colleges had already been converted into constituent ones and 30 more affiliated colleges would get constituent status soon. He said that the government had sanctioned a sum of one lakh rupees each to the newly converted constituent colleges for development of library and laboratory.

He said that there should be specialised teaching in every university. Duplication of education meant wastage of money. He said that every university should have its own identity and the Universties should impart latest job oriented training to the students Laying great emphasis on research he maintained that the universities should be equipped with latest scientific equipment. He said that the government would sanction necessary funds for promotion of research activities.

The Deputy Education Minister Mr. Kumud Ranjan Jha, said that poverty and illiteracy were the two main problems of the state. The present government had launched a severe attack on both these problems in order to connect this backward state from the national mainstream.

Mr. M.A.M. Gilani, Chairman of the Intermediate Education Council, welcomed the guests. Dr S.P. Sinha, Chairman, Inter-university Board, was also present.

Chavan favours effective teaching of English

Mr. S. B. Chavan, Union Minister for Education while addressing the staff and students of the Central Institute of English and Foreign Languages said that all out efforts should be made to wipe out illiteracy from the country. He said implementation of three-language formula was a challenging task which had not been faced by any other country. There was all the more need to formulate our own models of language education keeping in view of our own needs. The Union Minister, said that the Government was anxious to fulfil the provision of the Article 45 of the Constitution of India stipulating that all children of the age of 14 and below should be given free education. He said English which was an international language continues as our largest window to the growing fund of knowledge and learning. Hence English language should be taught in rural schools of the country so that vast sections of the population could benefit.

Mr. Chavan recalled the significant contribution of Indian writers and journalists to the English and said that Indian English had been recognised as a variety of English with a distinct identity of its own like American, English, Australian English and other varieties of English. He said that the Government had been bent upon to accord Indian languages their due place. The national leaders had been aware of the significant role of English being played in the international scene and they never opposed it. Mr. Chavan lauded the role played by the Central Institute of English and Foreign Languages in imparting training to the teachers to improve the skill of the languages. He expressed his happiness at the Institute formulating strategies and designing materials, and low cost books for effective teaching of English in the country. He said that All India Radio and television also were playing great role in the teaching of English language, by broadcasting the teaching programmes of the Institutes. He announced that two more similar institutes would be established one in Shillong and another in Uttar Pradesh during the Sixth Five-Year Plan period.

Dr. Ramesh Mohan, Director of the Institute in his welcome address said that two more Departments of Chinese and Spanish would be set up in the Institute soon.

Jammu university sets up task force

Jammu University has set up a task force in this university to explore the ways and means of generating interest among the eiligible students for competing in the All India Civil Services Examinations and prepare them for a success in these examinations. The Vice-Chanceller, Prof. Satya Bhushan, has already activised the Centre of Continuing Education by bringing radical changes in its composition and functioning since July 1980. The Centre, besides looking after the educational and other welfare programmes of the weaker sections, has also started coaching classes for the benefit of students who are keen to become Cost and Works Accountants and Company Secretaries. The Centre of Continuing Education of the University of Jammu has been recognised by the Indian Institute of Cost and Works Accountants, Calcutta and Indian Institute of Company Secretaryship, New Delhi as a coaching Centre for their courses.

Historians urged to do exploration work

The Vice-Chancellor of Patna University, Dr. Ramavatar Shukla, called upon the historians to unfold the mystries of ancient civilization and culture by carrying out detailed explorations in different parts of the state. Inaugurating a three-day seminar on 'Ancient Indian terracotta' in Patna, Dr. Shukla said that the state of Bihar dominated the history and cultural activities of the entire country for centuries.

Whether it be art or architecture, literature or philosophy, science and techonology.

He said that the explorations made by our university team had shown that man lived in Rajgir valley as early as one lakh years ago. But the remains were mostly crude stone tools. He pointed out that for the knowledge of all these ancient periods we had mostly to rely on unwritten materials like the potteries and terracottas.

Prof. K.D. Bajpai, of Indian Council of Historial Research, presided over the seminar.

Earlier, Dr. B.P. Sinha, Head of the department of Ancient Indian History, Patna University welcomed the guests and outlined the purpose of the seminar. Dr. B.K. Pandey detailed the activities of the Indian Council of Historical Research.

Educational technology centres suggested

A National Workshop on Educational Broadcasting was held in New Delhi as a part of Unesco's Asian Programme of Educational Innovational for Development. The purpose of the workshop was to develop national guidelines for educational broadcasting, which would be considered, along with the guidelines developed by other countries at a Regional Conference to be organised by Unesco in 1981. It was attended by 42 participants representing educational and media interests in the country.

An International Association for Technical Cooperation among Developing Countries using Mass Communication Media in Education was created in December 1978 as a non-governmental association with its headquarters in Abidjan, Ivory Coast. The objective of the Association which is being assisted by the UNDP is to promote technical cooperation among developing countries in the area of educational television. India is one of the twenty members of the Association and is also on its Technical Bureau. The third meeting of this Bureau was held in New Delhi during December 16-20, 1980 which approved several measures for promoting cooperation among the developing countries in the field of educational television.

In accordance with the recommendation of the Working Group on Educational Technology, State Governments were requested to consider setting up of State Institutes of Educational Technology of which the existing Educational Technology Cells would form a part. Maharashtra, Manipur and Tamilnadu have set up State Institutes of Educational Technology.

Book promotion centres

Under the scheme of subsidised publication of University Level Books in English, three titles were brought out in November, 1980. The National Book Trust also brought out seven titles under its various series in Indian languages and in English.

To provide more frequent and wider opportunities to the book industry and the booksellers in the regional languages, the Trust has taken up a programme of organising book festivals on a regional basis. The first book festival in the series was held at Indore from October 26 to November 2, 1980, followed by the second at Cuttack from Nevember 23 to 30, 1980. Over 60 publishers and booksellers from all over India including 10 from Madhya Pradesh, participated in the festival at Indore where the Trust also displayed 6000 selected titles published recently in Hindi, Marathi Gujarati, Urdu, Sanskrit and English. Children's Books and reading material for neo-literates were specially displayed at this festival during which a two-day seminar on rural publishing was also held. Over 50 publishers and booksellers from Orissa and Bengal as well as from all over India participated in the festival at Cuttack. 5000 selected titles published recently in Oriya, Hindi, Bengali, Telgu and English as well as children's books were displayed at this festival. These books will also be displayed in this regional book exhibitions at Berhampore, Balasore and Rourkela. A two-day seminar on Publishing for Rural Readers in Orissa was also held on November 28 and 29, 1980.

With a view to making its publications more easily available in Punjab, the National Book Trust has set up a Book Centre at Amritsar. Three Book Centres have already been set up in New Delhi, Hyderabad and Calcutta.

The Trust also participated in the Book Fairs held at Chandigarh, Coimbatore, Poona and Delhi.

The Raja Rammohan Roy National Educational Resources Centre convened a panel meeting of subject experts for the on-the-spot evaluation of university level indigenous books on Mathematics on November 14-15, 1980. Out of 10 books placed before the panel, 3 were recommended as text-books for the study at graduate and post-graduate levels and 5 as help books for library use.

About 500 children's books were displayed at an exhibition of Indian Children's Books held at the Indian Embassy at Addis Ababa from November 14 to 16, 1980.

Special exhibitions of Indian books were held at Bochuy (Federal Republic of Germany) from December 9 to 12 and at Penang from December 17 to 23, 1980.

Bihar for personal posts of university professors

The senior teachers of Patna University have demanded creation of personal posts of university professors for teachers having at least 23 years of service and who have fulfilled the other statutory qualifications.

In a meeting held in Patna, they welcomed the government decision regarding automatic promotion of lecturers to the post of readers and felt that similar benefit should be given to the experienced readers or college professors. They pointed out that a large number of senior teachers with brilliant academic career, foreign degrees and experiences of guiding research were stagnating due to lack of superior posts. They observed that the present method of recruitment promoted groupism and unacademic activities in the campus. Personal promotion to the higher posts would clean the university from politics and ensure high academic standard in the university. They resolved to form the Patna University Senior Teachers' Association.

Tirupati to start diploma course in NSS

Prof. G. Ram Reddi, Vice-Chancellor of Osmania University, stressed the need to make the National Service Scheme (NSS) a part of the University System. He was inaugurating the Four-Day Orientation programme for key-personnel of NSS in Tirupati. He said, that formal recognition should be accorded to NSS and the students who participated in the programme should be given some preference in employment. He suggested that each university could concentrate on one aspect of priority works like education and population problem.

Prof. M. V. Rama Sarma, Vice-Chancellor of Sri Venkateswara University, who presided, said it was proposed to start a diploma course in NSS from the next academic year.

Two all India services proposed

Another all-India engineering service and an all-India medical services on the pattern of the existing administrative and accounts and audit services are likely to be created by the Central Government. The proposal for creating engineering and medical services was first mooted as far back as 1960 but it met with a lot of opposition not only from the State Governments but also from the members of the Indian Administrative Service. The proposal was then kept in abeyance but an all-India forest service was constituted around that time. Subsequently in 1969, the Prime Minister wrote to all the Chief Ministers seeking their reactions to the idea. While most State Governments were opposed to the creation of both the services, Maharashtra, Tamil Nadu and Kashmir were opposed specifically to the formation of a health service. Subsequently the attempt failed and the proposal was kept pending.

Examinership of a lecturer scrapped in Calcutta

Calcutta University has permanently debarred a lecturer of Bengal Engineering College, Subpur, from the examinership of the university on a charge of making alleged "discrimination" in giving marks on answer scripts of students. The University council has accepted the report of a five-member committee which inquired into the matter.

The lecturer concerned, who happens to be the internal examiner, had alleged that three students of B. E. final year who had failed in Architectural Design were declared as having passed on the basis of a re-examination by a third examiner. On the basis of this allegation the Council appointed the inquiry committee.

According to Dr. R.K. Poddar, Vice-Chancellor, the committee found after inquiry that it was in fact a "case of discrimination" by the lecturer himself.

Copies of the committee's report as also a copy of the Council's have been forwarded to the State Government for necessary action.

Circuit course at Powai

An intensive integrated circuit course will be held for six days, at the Indian Institute of Technology, Powai. The course, organised by the Indian Physics Association, Bombay Chapter, will be inaugurated by Prof. R. E Bedford, Director, IIT, Bombay.

NIEPA organizes orientation programme

An Orientation Programme of N.S.S. Key Personnel was organized by National Institute of Educational Planning and Administration in collaboration with the Union Ministry of Education from 13th to 16th January, 1981 at New Delhi. Twenty three Key Personnel, who were Professors and Readers at the university level and Government officials from various parts of the country participated in the programme. Shri J. Veeraraghavan, Director of the Institute., in his inaugural address said that it is time we take stock of the things and decide the types of ideals which this scheme should follow. We should think as to how to make the programme effective, particularly, not only in the beginning of the new year but also in the beginning of the new decade or in the beginning of new five year plan. He referred to the prevailing mass poverty and wanted a solution for this problem. He referred to Fabian and Gandhian approaches to solve this problem. He said in the Indian context the Gandhian approach is more appropriate because it is a practical and action oriented one.

To discuss the scheme in broader and socially relevant context the following themes of the programme were selected by Prof. R.N. Ranade, Prof. L.R. Shah, Shri J. Veeraraghavan and Dr. G.D. Sharma:

1. Philosophy and thought process in the National Service Scheme Programme;
2. Review of Progress and Experience;
3. Experiences of Voluntary agencies about the work of Students and Community Response;
4. Techniques of programme planning and implementation: Students and teachers' participation and motivation; Project/programme evalutation, self-evaluation,
5. Linkages of University Education with Community through National Service Scheme Programme,
6. Social change through National Service Scheme,
7. Search for some new areas of work, and
8. Preparation of an action programme

Eminent educationists, like, Professor Rais Ahmed, Prof. Moonis Raza, Prof. S.C. Dube, Prof. Jallaluddin, Prof. R.N. Ranade, Prof. L.R. Shah, Prof. K.N. Kabra, Dr. R.R. Singh, Dr. Shekhar Singh, Colonel P. Dayal and Shri Sanjeet Roy spoke to the participants on these themes.

Besides the lecture/discussions

at the N.I.E.P.A., the participants were also taken to Jagatpur and Wazirabad villages for Spot Studies on Techniques of Planning with special reference to target group and participatory planning.

Valedictory address was given by Dr. M.S. Swaminathan, Member, Planning Commission. Dr. Swaminathan suggested many new areas of work relating to improving the eco-system and understanding environment. He also suggested that N.S.S. worekrs should adopt a block and integrate their service with the work of other developmental agencies. Dr. Swaminathan was of the view that purpose of N.S.S. should not only provide services or manual help in the form of "Shramdan" to village people but their activities should be integrated with their process of learning. The first step should be towards educating students about the environment and ways and means to improving it. They should also be educated about the techniques of integrated rural development. This should be followed by work/services in the adopted block.

News from Agril. Varsities

Programme on management and productivity techniques at PAU

Dr. Amrik Singh Cheema, Vice-Chancellor of the Punjab Agricultural University said that agricultural economy was being reshaped by the expanding forces of science and technology. The Green Revolution, coupled with greater awareness and socio-economic changes in rural India, had led to many developments, both on the farm and off the farm. He further said that the farm-level changes had resulted in the introduction and adoption of new technology and improved farm management practices whereas off-the-farm development mainly related to the efficient supply of inputs and better management of storing, processing, and distribution (marketing) of farm products. Now the combined off-the-farm functions were considerably larger in magnitude than the total farm-level operations, Dr. Cheema was speaking on the week-long Residential Programme on the Application of Management and Productivity Techniques in Agriculture organized formally by the Department of Business Management of the PAU and the National Productivity Council. More than 20 top executives from all over the country attended the Residential Programme.

Dr. Cheema said there was a two-way interdependence between businessmen and farmers in the dual roles of suppliers and purchasers. In general, agriculture and business were considered as separate entities and only of late, due recognition was being given to this interdependence. He further said that Agri-business meant the sum total of all operations involved in the manufacture and distribution of farm supplied and inputs; production operations on the farm; and the storage, processing, and distribution of farm commodities and products made from them. These operations must be ffectively combined and coordinated through sound, active management, if the country was to reap the full benefit of the green revolution and experience a substantial level of economic growth and development. He said that the improvements in agriculture had atrracted the attention of the manufacturing and marketing organizations as well as government and other development agencies which had started to gear up their programmes and policies in accordance with the new developments accompanied by the increasing demands for agricultural inputs like fertilizers, pesticides, weedicides, agricultural machinery and equipment, and improved seeds. The rise in rural income has also brought about considerable changes in the standard and the pattern of living of farmers, opening up a wide vista of new opportunities.

Dr. Cheema said that the management of agricultural, may take a variety of forms keeping in view the different agro-systems like Farm Management, Management of Agri-inputs and supplies, Management of agro-based industries and processing of agricultural produce, Management of Agri-extension and Developmental Activities and Management of other resources like water.

BHU organises dryland teaching course

A seven day training course on dryland technology for officers and scientists of drought areas of Orissa, Bihar, West Bengal and Uttar Pradesh was held under the joint auspices of Ministry of Rural Development, New Delhi, Department of Agronomy and Dryland Research Project, Institute of Agricultural Sciences at Varanasi. The trainees were exposed to latest research findings on dryland agriculture with the prime objective of information transfer to the farmers fields.

The Management of soils and their fertility, production techniques for suitable and selected cereals, oilseeds and pulses use of various implements for village, sowing, weeding, soil conservation irrigation etc. and practices developed for these areas in particular were shown to the participants. The efficient methods of collection, conservation and use of rain water were discussed at length, with emphasis on moisture conservation in the fields itself or through bundhis, ponds, reservoir and drop structure as well as wide diameter wells. The recommendations included judicious use of chemical fertilizers, at proper time. Techniques for use of pesticides in crops and during grain storage were also discussed.

Apart from crop production, fruit and vegetable culture and efficient introduction of cultivation of fodder and forage crops in less productive soils of drought prone soils was discussed. Aspects of agro forestry, animal husban-

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dry and fish culture in harvested water were also included in the discussions. The financial problems and the agencies working in the areas to make the programme success were also introduced to the participants.

The discussion highlighted the priority cultivation of oilseeds, pulses, fodder and forage crops, and the recycling of rainwater and organic matter. It was stressed that agroforestry and animal husbandry must be developed on scientific lines in these areas.

The scientist and participants visited the D.P.A.P. of Mirzapur district, as also research and farmers fields to acquaint themselves with the local conditions. The course was inaugurated by the Vice-Chancellor of Banaras Hindu University. Dr. Mahatim Singh, Director of the Institute of Agricultural Sciences and his colleague scientists and teachers organised the training.

The trainees appreciated the valuable achievements of the training course and suggested that such courses may be organised in other institutions of the country for efficient transfer of dryland agriculture technology to farmers fields.

Dutch engineers visit PAU

A two-member team of agricultural engineers of Holland discussed a Dutch-financed project of operational research on water and energy with the Vice-Chancellor of the Punjab Agricultural University, Dr. Amrik Singh Cheema. Dr. S.R. Verma, Dean of the College of Agricultural Engineering and other senior engineers of the University were also present. The object of this project is to develop and test the technology for optimum use of water and energy in agricultural production. It will also study the infrastructure and institutional arrangements for proper management of farm machinery, land and water resources.

JNKVV produces a new Til variety

"Jawahar Til-7" developed by Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV) was recently approved for release for general cultivation by the state outyields the present favourite varieties No. 128 and N-32 and some others, giving 10-12 q/ha against 8-9 q/ha averagely. In the All India Trials, JT-7 has performed very well in Madhya Pradesh, Maharastra, Gujarat and Rajasthan. A selection from uniform bulk of Pb 1, N P 6 and S H 446, it is a branched early variety maturing in 80-84 days. Its seed is bold white with 54 per cent oil. Another distinct quality of JT-7 is that it is resistant to phyllody and moderately resistant to phytophthora, cereospora and bacterial blight. Also, it is less susceptible to leaf roller and capsule borer.

Scientists oppose transfer move

The scientific community at the Indian Agricultural Research Institute has strongly criticised the reported move of transfers from centre to other research station. This follows a directive from the Indian Council of Agricultural Research to compile lists of "eligible scientists" at IARI who have completed five years in this station for transfer. The scientists claim that apart from creating an atmosphere of tension and uncertainty this would halt research at various stages of completion. Keeping in view the general concept of IARI as a research Institution, the authorities should aim at strengthening its activities in its specialised field rather than go in for transfers which might disrupt on-going projects. The IARI Scientific and Technical Staff Association has demanded that the Sarkar Committee's recommendation against transfer of scientists between laboratories of the Council of Scientific and Industrial Research (CSIR) should be applied to IARI also. The general secretary of the Association S.P. Singh, has suggested that recruitment should be made separately for the IARI regional stations. Transfers in scientific and technical organisations should be made an exception rather than the rule. The general-body meeting of the Association demanded that the IARI be made a national university of agriculture under the University Grants Commission Act.

Hasan for basic research

Prof. S. Nurul Hasan, Vice-Chairman of the Council of Scientific and Industrial Research (CSIR) said in Hissar that the basic research was of immense importance for the welfare of the country and the work of scientists should not be judged in terms of immediate profits. Prof. Hasan was speaking at the prize distribution function of the College of Basic Sciences and Humanities of Haryana Agricultural University (HAU). He advised the scientists to lay more emphasis on dryland farming so that drought during a year did not lead to difficult conditions in the country. He lauded the role ef scientists in evolving readily acceptable technology but at the same time urged them to lay more stress on post-harvest technology. Prof. Hasan exhorted the prize winners to focus attention on inputs of science and technology rather than on inputs on insecticides and weedicides. Dr. P.S. Lamba, Vice-Chancellor, HAU who presided over said that tangible results must flow from scientific research. This would gain peoples confidence and justify the investment made on it.

Panel to probe farm varsities

Mr. A.R. Antulay, Chief Minister of Maharashtra, has constituted an expert committee under the chairmanship of Mr. Y.J. Mohite, Member of Parliament and former State Minister to study and improve the working of the farm universities in Maharashtra with a view to enable them play a major role in farm development. Mr. Antulay, while addressing the farmers in Karad said that the committee would apply itself first to study the work of such universities and then suggest improvements. The report is expected to be available within the next four months.

AIU Meets At Hyderabad

The 56th Annual Session of the Association of Indian Universities met at Hyderabad at the invitation of Osmania University on January 31 and February 1, 1981. 72 Universities were represented. Amongst some of the decisions taken the following are referred to:

1. Recognising the need for some kind of an All-India comparability in educational performance, the proposal to conduct a National Merit Examination was commended. While the actual details are still to be worked out, the general intention is to hold an All India examination in various subjects both at undergraduate and postgraduate levels for those who wish to take such an examination. The grading at such an examination could be used as a basis for award of merit scholarships, research fellowships and even employment under Government or private auspices. A proposal of this kind had been discussed earlier and there seems to be consensus now in the country that the time is opportune for the introduction of such an examination. The agency for conducting this examination is yet to be identified. It could be one of the existing agencies or a new agency may be established for the purpose. The Association of Indian Universities is expectted o take initiative in this matter.

2. The issue of admitting self-financing foreign students into Indian universities was discussed in some detail. The proposal initiated by the Ministry of Education at the suggestion of the Association of Indian Universities to conduct a qualifying examination in different countries under the auspices of Indian Missions located there was approved. Also approved was the idea that the Association should collect data from different universities in regard to places available for these foreign students.

While this year the test in foreign countries would be conducted in March 1981, with effect from next year the test would be conducted in the preceding December. In other words, the test for 1982 would be conducted in December 1981 in different countries.

3. Discussing the UGC Review Committee Report submitted in 1977 and the decision of the Ministry of Education in respect to it taken in 1978, the following two recommendations were made:

(a) The UGC needs to be strengthened with the addition of a couple of whole-time members.

(b) The last amendment whereby the Vice-Chancellors may or may not be included in the UGC requires to be reconsidered. As till 1972, it should be made mandatory that a certain percentage of the membership of the Commission is drawn from amongst the ranks of the Vice-Chancellors. Even in regard to the Chairman and the Vice-Chairman, it was felt that they should as far as possible have been Vice-Chancellors.

4. In regard to the financial problems of universities, the following recommendations were made:

(i) The absence of a planning mechanism in most States makes things especially difficult. It is necessary that a planning mechanism be created and on it should be represented all the various interests concerned, viz. universities, departments of education, planning and finance.

(ii) The grant pattern should be reviewed every five years.

AIU members who attended the 56th annual meeting at Hyderabad.

The basis for that revision should be more favourable to universities which have yet to develop than as compared to which are already well established.

(iii) It is important to tax industry and business houses in the interest of higher education. They receive trained manpower from the universities and it is but reasonable to expect them to make some partial contribution to the system. In particular, the industrial sactor has a special responsibility towards the development and well being of technical education.

(iv) At the moment industry gets substantial tax relief for supporting R & D programmes including that in universities. On similar lines. tax relief should be made available for their support to the system of higher education.

5. The State Governments might be requested to take initiative to form Inter-University Finance Corporations for the development of education. The share capital may be subscribed to by the State Governments, universities, colleges, banks and other private and public undertakings. It should be possible for educational institutions to draw funds on easy terms from these Corporations so that repayment is feasible.

6. In regard to agricultural universities, it was recommended that one-third of the marketing tax collected by the Marketing Boards should be made available to these universities which are contributing to agricultural advancememt in the country through research and extension services.

7. Prof. G.S. Marwaha, Director, Indian School of Mines, Dhanbad, was elected the President for the year 1981-82.

8. The 57th Session of the Association will take place in Bombay at the invitation of the University of Bombay.

Madhuriben takes over as UGC Chief

Dr. (Smt.) Madhuri R. Shah till recently Vice-Chancellor of SNDT Women's University, Bombay, took over as Chairman, University Grants Commission on 12th February, 1981.

Born on December 13, 1919, Smt. Shah graduated from St. Xavier's College, Bombay, with Honours in Mathematics and English. She stood first in Bombay University in the M.Ed. degree examination in 1949, winning a fellowship. She took her Ph.D. in Educational Administration from Bombay University in 1952 and in Comparative Education from London University in 1954 where she studied as a British Council scholar.

Dr (Smt.) Madhuri R. Shah

Dr. Shah was Professor of Education in the Indian Institute of Education and also Managing Editor of the Indian Journal of Educational Research, Bombay from 1950 to 1955. This was followed by a five-year term as Research Officer (Education) of the Municipal Corporation of Greater Bombay and a 14-year stint as Education Officer of the Corporation. During this period, she kept up her teaching assignment as a Professor of Education.

Known for her keen interest in continuing and adult education and innovations in the field of higher education, Smt. Shah took over as Vice-Chancellor of Shreemati Nathibai Damodar Thakersey Women's University, Bombay in 1975.

Dr. Shah has held various positions in professional organisations and universities, both at home and abroad, besides having been associated with a number of committees of the University Grants Commission. She has been a Consultant to Unesco's International Institute of Educational Planning, Paris. She is keenly interested in literature and films for children and has been President of the Children's Little Theatre, Bombay, besides being a member of the Children's Film Society. Delhi. Smt. Shah is the author of about 200 research papers and books dealing with various facets of higher education, its administration and organisation.

She was nominated by the Government of India in 1970 to visit UK, USA, Japan and Malaysia to study in innovative programmes in science and mathematics. She has also been a Visiting Professor at Teachers' College, Columbia University and at Stanford University.

Smt. Shah succeeds Professor Satish Chandra, who completed his tenure as UGC Chairman on the 14th of January 1981. The first woman to preside over the Commission, Smt. Shah is the sixth Chairman of the UGC as a statutory body.

Science & Technology

Sethna's stress on nuclear energy

H.N. Sethna, Chairman, Atomic Energy Commission emphasised exploitation of nuclear energy to meet the world's growing energy demands amid depleting sources. “Contrary to popular belief, the occupational risk of a nuclear reactor is much lower than the one for many familiar industries”, Dr. Sethna said hitting back at the critics, who demanded a ban on nuclear reactors following the three-mile island mishap.

Delivering the 13th Bhabha memorial lecture at the institution of electronics and tele-communication engineers in Bombay he said nuclear power stations had extensive built in safety systems to prevent casualties in the event of an accident. There is not even one documented fatality from the nuclear industry, because the volume of fuel handled is very small”, Dr. Sethna, dwelt at length on almost all non-nuclear sources of energy in his 17-page-talk on “energy for the future”. He said all the presently known resources of fossil fuel would be exhausted by 2010 if the trend in increase in energy consumption was maintained at the 1960-1973 rate of five per cent a year. “Even if one assumes that the energy consumption remains stagnant at the 1976 level, the period can be stretched only to 2066”.

Referring to solar energy, Dr. Sethna said it was not continuously available on the surface of the earth and the costs involved in storing it were prohibitive compared to fossil or nuclear systems. “Significant breakthroughs are necessary before solar energy can be made economical especially for the generation of electric power”. Geo-thermal energy sources were abundant, he said and noted that the main problem was the identification of heat reservoirs which could economically be tapped.

Harnessing of wave power was a far cry and even if total hydro-electric power potential could be tapped, it was not feasible to meet the total energy demands of future generations, he argued.

Dr. Sethna said nuclear energy sources were highly concentrated sources of energy and fission reactor systems had been well developed for commercial power generation. Though the technology of breeder reactors which could solve the energy problems, had not been perfected, he was optimistic about the necessary expertise being developed in the field before the end of the century. The Indian atomic energy programme itself envisaged sufficient quantities of plutonium from heavy water reactors built in the first stage. The plutonium so generated will be used to feed fast breeders in the second stage, and these will generate sufficient fuel to feed the reactors continuously.” The use of nuclear energy for electric power generation was increasing steadily and was around 20 per cent in countries like Switzerland, France and Japan.

Rao pleads for scientific research centres

Dr. B. Ramachandra Rao, Vice-Chairman, University Grants Commission, called for creation of about half-a-dozen university-linked institutions which would serve as centres of inspiration for scientific and technological research.

He was inaugurating a two-day national seminar on areas of national priorities in research and development in the 1980's organised by the society of R and D managers of India at Hyderabad. He described as “alarming” the situation regarding scientific research in the universities. The universities, he said “ceased to be centres of great inspiration for research”. Things are not really rosy when we look into the affairs of some universities and colleges which had become snake-pits of politics and unacademic activities.

Prof. Rao said hardly 20 per cent of the research projects in the universities could be classified as research and development effort. The large number of students in universites had resulted in degeneration of standards and most of the 120 universities, 4,500 colleges and 800-odd post-graduate centres had become mere teaching shops. We could do well with a lot of family planning in our admissions to universities where quantity is resulting in dilution of quality.

Institute of advanced study to organise colloquia

The Institute of Advanced Study in Science and Technology in Assam would organise a series of colloquia in different areas of science and technology. The colloquia will be held at different centres in the NE Region with the prime object of exchanging ideas and stimulating active interests among the scientific workers of the region in the recent trends of research in border line areas of different fields of science and technology.

This colloquia will be open to members of the Assam Science Society, scientists, technologists, scholars, planners and members of academic and industrial institutions laboratories, Government departments and undertakings and to all who are interested and concerned in the topics. An important purpose of these colloquia will also be possibly to suggest areas of studies and research that may be sponsored by the Institute of Advanced Study within its scope of development. The Institute will particularly strive to encourage active contacts of the scientific talents of the region with their counterparts working in advanced laboratories and institutions both in the country and abroad and to further promote inter-institutional collaboration in the pursuit of some of the projects to be sponsored by the Institute. The Institute will present the first colloquium under the above series on ‘Problems of Foodspoils and its effect on Health.

India and Mexico to cooperate in science and agricultural programmes

India and Mexico have signed two programmes of cooperation—in science and technology and in food technology and agricultural research. The programmes of cooperation on science and technology was signed by Mr. Maheshwar Dayal, Advisor to the Department of Science and Technology and Mr. Alfredo Namirez Araiza, Director, National Council of Science and Technology, Mexico. The programme of cooperation on food technology and agricultural research was signed by Dr. O. P. Gautam, Director-General, Indian Council of Agricultural Research and Mr. Cassio Iniselli Fernendez, Director-General, Mexican Food System and Coordinator-General, Mexican Food System.

The areas covered under the science and technology programme include forestry, machine tool technology, information science, renewable sources of energy, utilisation of baggage for the manufacture of newsprint, steel-mining and water resources management. The programme also covers petroleum technology, cultivation of petro-crops like jojoba and transfer of technology including setting up of pilot plants by India in Mexico.

The areas covered under the programme of cooperation in food technology and agricultural research include food processing, post-harvest grain management and conservation technology, microbiology and sanitation. It also covers fermentation technology, fruit and vegetable technology, infant food, food enrichment, food packaging and storage technology and basic proteins and enzymes research.

INSDOC completes compilation of data on scientific serials

The Indian National Scientific Documentation Centre (Insdoc), New Delhi, has completed compilation of holdings data of scientific serials in about 770 institutions from all over the country. The Department of Science and Technology under NISSAT (National Information System for Science and Technology) scheme supported the project and provided *ad hoc* grants. Valuable information about holdings of scientific serials has been collected from most of the laboratories under the Council of Scientific & Industrial Research, Indian Council of Agricultural Research, Indian Council of Medical Research, Defence Research and Development Organisation, Indian Space Research Organisation, Atomic Energy Commission, and Electronics Commission; industrial complexes like Steel Authority of India Ltd, Bharat Electronics Ltd, Bharat Heavy Electricals Ltd, Hindustan Machine Tools Ltd, etc; universities, academic and R & D institutions in the fields of agriculture, engineering, medicine etc. The entire data have been organized in such a manner that Insdoc can provide information services in response to requests for location of scientific serials in the country. Accordingly, necessary arrangements have been made to attend promptly to queries in this regard.

Insdoc will bring out in printed form the National Union Catalogue of scientific serials covering information on about 40,000 titles held in the wide range of institutions all over the country. Also, suitable programmes have been chalked out to maintain an up-to-date record of holdings of scientific serials in machine-readable form.

A data base of On-going Research Projects in the Council of Scientific & Industrial Research and Indian Universities including institutions of higher learning has also been created at the INSDOC in collaboration with the Department of Science and Technology. The data base has information on 10,625 research projects under way in different fields of science and technology in 27 laboratories of CSIR, 100 universities, 5 IIT's and 7 institutions deemed to be universities. The following information can be had from this data base: research projects being investigated in different subjects/pinpointed areas; institutions/personnel engaged in these projects; names of the sponsoring bodies with their projects; duration of the project; brief description of the project; and its status as in April, 1978.

The data base is also available in an easily readable printout form and can be consulted in the National Science Library. Jawaharlal Nehru University Campus, New Delhi, or at Insdoc, Hillside Road, New Delhi. The information available in this form is arranged subject-wise and is supplemented with the following indexes for easy consultation: keyword index, investigator index, sponsor index, and institution index.

Science centres for all districts

The Union Government proposes to set up science centres in every district in a phased manner to encourage science in rural areas, Dr. Ghosh, Director of Science Museums in India while speaking in Bangalore said that the Government was also planning to set up a large science centre in Delhi to provide infrastructural facilities for science activities in the northern region. At present, science museums at Bangalore, Bombay and Calcutta were serving south, west and eastern regions, respectively.

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—Editor

Awards & Medals

Sahitya Akademi awards announced

Nineteen authors and poets have been selected for the Sahitya Akademi Awards for 1980, for their works. The awards, which consist of an inscribed copper plaque and Rs. 5,000 will be presented to the authors at a special function. The award-winning books were selected by the executive board of the Akademi from books published between January 1977 and December 1979. No awards have been given for works in Kashmiri, Telugu and Manipuri.

The works selected comprise seven novels, seven on poetry and one each of short stories and literary criticism, a biography, a travelogue and an epic.

Following are the books selected for the awards :

Assamese : Prithibir Asukh (short-stories) by Jogesh Das.

Bengali : Shamba (novel) by Samaresh Basu.

Dogri : Ghar (poetry) by Kunwar Vijogi.

English : On the Mother (biography) by K.R. Srinivasa Iyengar.

Gujarati : Anunaya (poetry) by Jayant Pathak.

Hindi : Jindaginama Jinda Rukh (novel) by Krishna Sobti.

Kannada : Americadalli Goruru (travelogue) by Goruru Ramaswami Iyengar.

Konkani : Pisollim (poetry) by Manohar Sardesai.

Maithili : Ee Bataha Sansar (novel) by Sudhanshu Shekhar Choudhary.

Malayalam : Smaraks Silakal (novel) by Punathil Kunja-Bulla.

Marathi : Salam (poetry) by Mangesh Padgaonkar.

Nepali : Sunakhari (novel) by Okiyama Gwyne.

Oriya : Abantar (poetry) by Ananta Patnaik.

Punjabi : Suraj Te Kehkashan (Poetry) by Sukhpal Vir Singh Hisrat.

Rajasthani : Mharo Gaon (poetry) by Rameshwar Dayal Shrimali.

Sindhi : Yad Hik Pyar Ji (novel) by Krishin Khatwani.

Sanskrit : Kristubhagavatam (epic) by Devassia.

Tamil : Chereman adali by Kannadasan.

Urdu : Iqbal Ki Terah Nazmen (literary criticism) by A.A. Ansari.

Salam gets Birla award

Prof. Abdus Salam, the noble laureate from Pakistan was awarded the first RD Birla memorial award of the Indian Physics Association at Bombay. The award was given in recognition of Prof. Salam's contribution towards the understanding of basic structure of matter, and forces that underline the physical world. Prof. Salam had made a lasting impact on the development of relativistic quantum field theories fundamental for the formation of basic laws of particle interaction. He has also made significant strides in the ambitious programme of basic forces of nature.

Pitamber Pant fellowship

The Government has instituted Pitamber Pant National Environmental Fellowship to be given every year on the World Environment Day (5 June) to an Indian citizen for undertaking advanced studies leading to better understanding of issues concerning environmental conservation, preservation and protection. The candidature for this award will have to be sponsored by an organisation having necessary facilities for carrying out the proposed work. The two-year fellowship carries Rs. 2,500 per month besides Rs. 5,000 contingency expense a year.

Dr. Nanda honoured

Dr. K.K. Nanda, Professor of Plant Physiology in the Botany Department of the Panjab University has been awarded the S.M. Sircar Memorial Medal at the 68th session of Indian Science Congress Association held at Varanasi recently. The award has been instituted by the Botanical Society of Bengal in the memory of Prof. S.M. Sircar, a renowned botanist.

ICMR awards for scientists

Fifteen bio-medical scientists have been selected by the Indian Council of Medical Research (ICMR) for its national awards for their outstanding contribution to research for the year 1980.

The Award winners are: Dr. NC Nayak, Dr. P.N. Tandon, Dr. S.C. Manchanda, Dr. (Mrs) Vinod Kansal, (all from AIIMS, New Delhi), Dr. B.D. Gupta, Dr. R.J. Dash, Dr. V.K. Vinayak (all from PGI Chandigarh), Dr. Maharani Chakrovorty, Dr. G.P. Kattiyar, Dr. Sureshwar Mohanty (all from Institute of Medical Sciences, Varanasi), Dr. K. Prema (National Institute of Nutrition, Hyderabad), Dr. George Cherian, Dr. C.K. Job (both from Christian Medical College, Vellore), Dr. R.N. Basu (DGHS, New Delhi) and Dr. K.V. Desikan (Central Jaima Institute for Leprosy Agra).

Dr. N.C. Nayak has been awarded the Basanti Devi Amir Chand Prize for his work on liver disease while Dr. B.D. Gupta has received the Sandoz Oration Award as a recognition of his contribution in radiation therapy for cancer in cervix. The Yisi Narana Rao Award has gone to Dr. Maharani Chakravorty for her contributions in co-regulation of metabolism in unicellular organism.

Dr. George Cherian has been selected for the Dr. Kamala Menon Medical Research Award in internal medicine for his studies in rheumatic fever and rheumatic heart disease whereas Dr. K.Prema has been awarded the Kshanika Oration Award for the contributions in the evaluation of methods for fertility regulation.

Dr. M.K. Seshadri Prize for this year has been bagged by Dr. R.N. Basu for his contributions in eradication of smallpox from India. Dr. P.N. Tandon has been selected for the Dr. M.N. Sen Oration Award for his work in neuro-sciences.

Dr. K.V. Desikan and Dr. C.K. Job will share the Jaima Trust Fund Oration Award in recognition of their outstanding contributions in the field of experimental leprosy and significant work in pathology and pathogenesis of deformities in leprosy.

The Raja Ravi Sher Singh of Kalsia Memorial Award for this year has been awarded to Dr. R.J. Dash for his research work in hormonal markers for cervical cancer and the V.N. Patwarshan Prize has gone to Dr. G.P. Kattiayar as an honour for his research work on the effects of nutritional deprivation on brain growth and functions.

The Shakuntala Amir Chand Prize has been shared by four scientists—Dr. Sureshwar Mohanty, Dr. K.V. Vinayak, Dr. S.C. Manchanda and Dr. Vinod Kansal. They have been selected for their contributions in the fields of head injury pathological and immunological aspects of amoebiasis high altitude physiology and fetal liver transplantation in a plastic anaemia respectively.

C. Thakur gets Dr. Rajendra Prasad award

Dr. Chandrika Thakur, former Director of Agriculture, Bihar, has been selected for the first prize of Dr. Rajendra Prasad Award of Agricultural Research in recognition of his book "Our Farming" written in Hindi. Dr. Thakur had earlier, received Rashtra Bhasha Parishad award for his book "Bihar Ki Krishi Aur Samajik Byavastha" and Birbal Sahani award for his book "Fasal Vigyan" from U.P. Government.

Dr. Thakur has written several books on Indian farming both in Hindi and English, which are based on the new concept of the science of agriculture. He has held several important posts—including that of Vice-Chancellor of Jawaharlal Krishi Vishwavidyalaya, Jabalpur. He was the President of India Association in the University of Wisconsin (U.S.A) and took active part in the projection of Indian political and social life.

Menon heads Energy Commission

Prof. M.G.K. Menon, Secretary in the Department of Science and Technology, New Delhi, has been appointed Chairman of the new Commission for alternative sources of energy set up by the Union Government. The Commission will include the Secretary, Power Department as a member and also a Finance Member. It will advise the Government on its energy policy and draw up and implement programmes on alternative sources of energy.

Nehru award for HAU scientists

Three scientists of the Haryana Agricultural University (HAU) have been awarded the Jawaharlal Nehru award for the year 1980 by the Indian Council of Agricultural Research for their meritorious work in the field of agriculture and livestock. The scientists are Dr. K.C. Bhatia, Dr. C.M. Kapoor and Dr. Kirpal Singh.

Dr. Bhatia, who is working in the department of veterinary pathology, has been given the award for identifying possible factors and incriminating agents responsible for "Degnela" disease in animals. Dr. Bhatia found that this disease occurred when animals at mould and moist rice straw.

Dr. Kapoor, working as Assistant Professor in the department of livestock, production and managements, carried out his award winning research at the National Dairy Research Institute (NDRI), Karnal, on the utilisation of soyabean and whey—the manufacture of weaning food of high protein efficiency ratio.

Dr. Singh, who is as Assistant Nutritionist at HAU, also conducted research at NDRI, Karnal, on influence of dietary tannis on amino acid absorption, intestinal histological changes, growth and milk production.

Hari Om Ashram award

Applications are invited for "Hari Om Ashram Prerit Shree Chunilal Vajeram Reshamwala Smarak Trust Award" of the value of Rs. 5,000/- from Indian Nationals having outstanding original research work of merit and research publications in the field of "Oceanology" during the period January, 1975 to December 1979.

The prescribed application forms will be available from the University Office and the candidates should submit application in four copies alongwith the printed publications so as to reach the Registrar, South Gujarat University, University Campus, Udhna-Magdalla Road, Post Box No. 49, Surat-395007 (India) on or before 28-2-1981.

The application forms and the rules governing the award will be available from the University on payment of Rs. 5/- in cash or Indian Postal Order.

Britain aid for developing country students

Britain proposes to give 300 new awards in 1981-82 to postgraduate students from developing countries, including India, which have technical co-operation arrangements with Britain. These awards, which are administered by Britain's Overseas Development Administration, will meet 50 per cent of postgraduate fee costs and will be allocated to students studying in Britain on the recommendation of their academic supervisors. The awards are separate from Britain's technical co-operation training programme for India under which about 450 nominees of the Government of India will undertake training in Britain during 1981-82.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Agarwal, Madhubala. On some dynamical problems in continuum mechanics. University of Calcutta.

2. Awasthi, S.N. A new method to solve the two dimensional problems of isotropic elasticity with body forces. Rohilkhand University.

3. Kaul, B.N. On certain methods of summability and their applications. Rohilkhand University.

4. Mam Chand. Some problems in integer programming. Meerut University.

5. Mukhopadhyay, Dipankar. Some two and three dimensional problems of mathematical theory of elasticity. University of Calcutta.

6. Singhal, Asha. Bitopological spaces. Meerut University.

7. Sneh Lata. A study of integrability conditions of an arbitrary geometric structure; Generalised exterior derivations in complex and framed-manifods. University of Delhi.

Statistics

1. Bathla, Har Vishan Lal. On use of function of auxiliary information in sample surveys. Meerut University.

2. Sahoo, Lokanath. Some problems of estimation using auxiliary information in sampling from finite populations. Utkal University.

Physics

1. Deogaonkar, Vijaykumar Shamsundar. Microwave absorption and ultrasonic study of some organic liquid mixtures. Nagpur University.

2. Devasia, C.V. Studies on the short period disturbances and ionization layers in the equatorial electrojet. University of Kerala.

3. Dhalpara, Dilip Purushottamdas. Study of collective bands of the hole states in nuclei with N, Z 28 and of high spin states in nuclei with N+28 and 29. M.S. University of Baroda.

4. Ghosh, Dipankar. Electron microscopic studies on lambda and Col E1 DNA. University of Calcutta.

5. Guharay, Samarkumar. Investigation of some plasma instabilities in a penning discharge. University of Calcutta.

6. Guru Prasad, Sripada. Ionometric scatter study of 4 MeV X-ray beam from tissue equivalent phantoms. Andhra University.

7. Lalitha, Kompella. Studies on the higher order processes accompanying nuclear beta decay. Andhra University.

8. Nawab Singh. Effect of pressure on peak F-band absorption energies in alkali halides. Meerut University.

9. Patanjali Sastri, Suri, Studies on the nature of ionospheric motions. Andhra University.

10. Rama Devi, P. Spectral studies of vanadium, chromium and manganese ions in strontium and calcium formate crystals. Sri Venkateswara University.

11. Ranga Reddy, Y. Studies on dielectric properties of some solids. Kakatiya University.

12. Sao, Ganga Dhar. Study of thin films of ferroelectric and related materials. Ravishankar University.

13. Sarkar, Salil Kumar. Study on some problems in lattice dynamics and on the development of a potential model for some covalent crystals. University of Calcutta.

14. Sharma, Ashok Kumar. Dielectric relaxation studies in some polar liquids. Meerut University.

15. Shrivastava, Keshav Narain. Some effects in magnetism: The interaction of radiation with magnetically ordered materials, the coupling of lattice vibration with paramagnetic impurity and with exchange coupled ion pairs. University of Calcutta.

16. Subbarao, Munagalla Venkata. Studies on photoeffect using a Mossbaur spectro-photometer. Andhra University.

Chemistry

1. Abdul Wahid, P. Behaviour of pesticides in soils. Utkal University.

2. Agarwal, K.M. Studies on the preparation, composition and evaluation of microcrystalline derivatives from some Indian crudes. Meerut University.

3. Agarwal, R.C. Studies of complexation reactions of dithiocarbamates. Rohilkhand University.

4. Agarwal, Rajesh Kumar. Studies on some mixed ligand complexes. Rohilkhand University.

5. Arbad, Balasaheb Ramrao. Studies in some ionic and molecular interactions. Marathwada University.

6. Basu, Asok. Studies on the naturally occurring nitrogenous compounds. University of Calcutta.

7. Bhattacharya, Som Nath. Studies on addition polymerization. University of Jabalpur.

8. Dasgupta, Chitra. Studies on natural products. University of Calcutta.

9. Doshi, Mukundkumar Chhabildas. Studies with ion exchangers. M.S. University of Baroda.

10. Dubey, Gopal Prasad. Studies on addition polymerization. University of Jabalpur.

11. Gaikwad, Digamber Manikrao. Kinetics of oxidation reactions. Marathwada University.

12. Ghosh, Anuradha. Synthetic studies on terpenoids and related compounds. University of Calcutta.

13. Gupta, Deepa. Characterisation of some transition metal complexes of some antifungal and antibacterial organic ligands. Meerut University.

14. Ishwar Kumar. Chemical investigations of indigenous medicinal plants. Meerut University.

15. Ishwar Singh. A study on structure and stereochemistry of metal complexes of nitrogen and other donor ligands. Meerut University.

16. Jha, H.N. A chemical study of some naturally occurring flavonoid pigments. Meerut University.

17. Kale, Archana. Kinetic and analytical studies on some redox processes in solution. University of Jabalpur.

18. Krishna Kumari, P. Reactions of compounds having linkages with biochemical significance. Jiwaji University.

19. Mahalingam, C. Stability constants of some azo-dyes and related compounds. University of Jabalpur.

20. Mahavir Prasad. Aldimines as analytical reagents. Meerut University.

21. Maheshwari, V.K. Kinetics and mechanism of oxidation of carboxyanilic acids by ceric (IV) ion in acidic medium. Rohilkhand University.

22. Majumdar, Subrata. Studies on the naturally occurring heterocyclic compounds. University of Calcutta.

23. Mehrotra, R.N. Studies on molecular weight distribution of styrene butadiene rubber. Rohilkhand University.

24. Mittal, Aditya Prakash. Physico-chemical studies on the sample and substituted proteins: I. Their role in C/W emulsions; and II. Their reactions with phosphomolybadilic and phosphotungstic acids. Meerut University.

25. Nagar, Meena. Studies on some metal complexes of acylic monoterpenic constituents of essential oils. Rohilkhand University.

26. Pal, Bata Krishna. Analytical studies of some toxic metal pollutants in natural water resources. Visva-Bharati.

27. Pal, Tapanendubikas. Binary and ternary ion exchange equilibria studies of some cations on Amberlite IR 120. University of Calcutta.

28. Panda, Gadadhar. Studies in high polymer systems. Utkal University.

29. Patolia, Ravjibhai Jivrajbhai. Studies in the synthesis of benzopyrone derivatives. M.S. University of Baroda.

30. Powar, Pravin Kumar. Studies on substituted hydroxylamines. University of Jabalpur.

31. Prasad, Ram Sumeru. All valence electron SCF-LCAO-MOCI study of electronic spectra and molecular properties of organic molecules. Magadh University.

32. Raghuram, Tirumal Venkata. Studies on some analytical aspects of diphenylamine and a few of its derivatives. Andhra University.

33. Rajendra Prasad, D. Studies on the substitution reactions of some chromium (III) Schiff-base complexes. Sri Venkateswara University.

34. Saha, Khagendra Kumar. Studies on some polycondensate derivatives of castor oil with special reference to polyurethanes. University of Calcutta.

35. Saluja, Mahendra Pal. Studies in chemotherapy: Chemical investigation of medicinal plants of India. Meerut University.

36. Sharma, Padam Niwas. Chemistry of natural products: Chemical investigation of medicinal plants. Meerut University.

37. Sharma, Ram Kumar. On coordination of substituted thiosemicarbazones with transition metals. Meerut University.

38. Singh, Chandra Pal. Synthesis and studies of 1:2 diazoles and diazolones. Rohilkhand University.

39. Singh, Rishi Pal. Studies on the interaction of poly acids, metal ions and some specific compounds with proteins and related compounds. Meerut University.

40. Singh, Savitri. Chemical study of some Indian medicinal plants. University of Saugar.

41. Suman Bala. Search for some new bacteriostatic agents from phthaleins and fluoresceins of heterocyclic, endocyclic and carbocyclic (cycloparaffins) acids. Meerut University.

42. Swami, Madan Mohan. Stereochemistry of some transition metal complexes of substituted thiosemicarbazide and thiosemicarbazone. Meerut University.

43. Verma, Om Prakash. Chemical investigation of some Indian medicinal plants with special reference to antifertility. University of Rajasthan.

44. Vyas, Devendra. Studies on 6, 7-benzomorphan related compounds. University of Rajasthan.

Earth Sciences

1. Appa Rao, Gunnam. Geology of the Kateru Pangidi Region, Godavari District, Andhra Pradesh with reference to geochemistry of basalts. Andhra University.

2. Basu, Swades Kumar. Petrology of the eastern part of the acid igneous complex of Barda Hills, Western Saurashtra, Gujarat. University of Calcutta.

3. Bhattacharya, Gautam. Morphometric and topological studies of the drainage system of Singhanama Area, District Hoshangabad, Madhya Pradesh. University of Delhi.

4. Durgadmath, Mrityunjayaswami.Basayya. Geology of the Phenai Mata igneous mass and its environs, Chhota Udaipur Taluka, Baroda District, Gujarat State, India. Karnataka University.

5. Ghosh, Debasish. Structural evolution of the Dharwar rocks around Dodguni Tankur District, Karnataka State and its relation to stratigraphy and metamorphism. University of Calcutta.

6. Sengupta, Nabayuga. A revision of the geology of the Jharia coalfield with particular reference to distribution of the coal seams. I.S.M., Dhanbad.

7. Venkata Rao, Achanta. Some agro-climatic studies of the deltaic districts of Andhra Pradesh. Andhra University.

Engineering & Technology

1. Behera, Ajit Kumar. Some studies on damping in structural metals. Sambalpur University.

2. Gopalakrishnan, Govindarajan. On secondary flows in radial diffusing cascades. University of Calcutta.

BIOLOGICAL SCIENCES

Anthropology

1. Hittalmani, Shashidhar Veerabhadrappa. Growth changes in head, face and stature of boys and girls of Dharwad town in 6-16 years age group. Karnatak University.

Biochemistry

1. Bandyopadhyay, Ambikacharan. Biochemical studies on tubulin microtubule system. University of Calcutta.

2. Basak, Subhaschandra. Biochemical action of amphetamine in brain. University of Calcutta.

3. Chakraborty, Ratna. Pathological investigation concerning infection and wilting of Acacid mollissima Roxb. by Fusarium solani (Montens) Appelet Wollenweber. Gauhati University.

4. Rajasekharan Pillai, K.S. Biochemical studies on some leachable components of plastic. University of Kerala.

5. Sarma, Archana, Studies on the effects of 3-methylcholanthrene on ascorbic acid metabolism. Gauhati University.

Biology

1. Anantha Reddy, G. Cytological studies on the effects of some analgestic and antipyretic drugs on plant and animal chromosomes. Osmania University.

Marine Biology

1. Paulinose, V.T. Studies on decapod larvae of the Indian Ocean. University of Kerala.

Botany

1. Agarwal, Meera. Ecophysiological effects of sodium fluoride (NaF) and sulphur dioxide (SO$_2$) on Hordeum vulgare under modified conditions of nitrogen, phosphorus and potash nutrition. Meerut University.

2. Agarwal, Rajiv Mohan. Shoot apical, ontogenetic and growth rate studies in Dalbergia sisso Roxb. Meerut University.

3. Ashtekar, Prakash Vasantrao. Studies on the freshwater algae of Aurangabad District. Marathwada University.

4. Behera, Basanta Kumara. Analysis of the effect of industrial effluent on the physiology of rice seedlings. Berhampur University.

5. Chaudhuri, Baru Singh, Physiological and metabolic studies on the tannins of Indian amla plants. Meerut University.

6. Gambhir, Shivchandra Prahlad. Studies in some allantosporous ascomycetes. Marathwada University.

7. Gangwar, Pramod Kumar. Developmental, metabolic and embryological studies in Brassica juncea Czern & Coss with reference to gamma irradiation. Rohilkhand University.

8. Gupta, Samir Kumar.Taxonomic investigation on the pyrenomycetes of Eastern Himalayas and adjoining areas of West Bengal. University of Calcutta.

9. Kapoor, Tripat. Embryological and histochemical studies in some aquatic monocotyledons: Potamogetonacae and Najadaceae. University of Delhi.

10. Kate, Tarak Laxmanrao. Causes of sterility in some horticultural and crop plants. Nagpur University.

11. Kulkarni, Geetaram Manoharrao. Studies on seed health testing: Oil seeds. Marathwada University.

12. Laloo, Roytre Christopher. Ecological study of the weed flora of some of the Hill areas of Meghalaya and their chemical control. Gauhati University.

13. Madhusudan Rao, M. Studies on the myco-ecology of certain aquatic, semi-aquatic and terrestrial ecosystems of Mannanur Forest, A.P., India. Osmania University.

14. Panwar, Megh Raj Singh. Mycoflora associated with Scirpus tuberosus Desf. Meerut University.

15. Parida, Ramakanta. Studies on the biochemistry of leaves and cotyledons during development and senescence. Utkal University.

16. Patil, Sudhir Narayanrao. Studies on the residual urban vegetational systems at Baroda. M.S. University of Baroda.

17. Qureshi, Mohammed Riazul Hussain. Genetic improvement of plant type, productivity and fibre traits of Gaorani cotton, G. arboreum race indicum. Osmania University.

18. Rath, Shiba Prasad. Cytotaxonomic studies in Cyperaceae with special reference to Cyperus Linn. and Fimbristylis Vahl. Utkal University.

19. Ravishankar, G.A. Enzymatic studies on the regulation of Nicotina biogechesis in cultured tissues of tobacoo. M.S. University of Baroda.

20. Roy, Kirity. Studies of Gymnoascaceae and the related fungi. Utkal University.

21. Sarvesh Kumar. Induced mutations in garden pea, Pisum sativum L. and black gram, Vigna mungo L. Meerut University.

22. Selot, Manchar. An ecological study of Dulehra Tank. Ratanpur, Bilaspur. Ravi Shankar University.

23. Tripathi, Manju. Effect of growth retarding chemicals on selected forage (Avena sativa L and Cyamopsis tetragonoloba L) plants. Jiwaji University.

24. Tyagi, Shiv Nath Singh. Studies on the downy mildew of balsam. Meerut University.

25. Vijayakumar, P. Light and scanning electron microscopic studies of the seedcoat characters of Cleomoideae (Capparidaceae) and its taxonomic and phylogenetic significance. Kakatiya University.

Zoology

1. Bhatnagar, Mukesh Chandra. Bioassay studies with certain biocides to a fish, Channa gachua and their effect on certain tissues. Meerut University.

2. Bhatnagar, R.K. Studies on bird depredations and their control in certain agricultural crops. Meerut University.

3. Chadha, Raminder Kaur. Study of cell biological aspects of the hypotrichous ciliate, Stylonychia mytilus Ehrenberg. University of Delhi.

4. Chauhan, Sudha. Effect of indigenous drugs on spermatogenesis in albino rats. Jiwaji University.

5. Chowdhery, Veena. Cytological study of the growing oocytes of a few teleosts. Meerut University.

6. Gopalam, K.B. Distribution of some genetic markers among Vysyas of A.P. Osmania University.

7. Gupta, Bhagwan Das. Studies on pheromones of insects: Orthoptera, Heteroptera and Lepidoptera. University of Saugar.

8. Gupta, Ramesh Babu. Studies on the cardiovascular system of birds and mammals; A neurohistochemical approach. Jiwaji University.

9. Gupta, Vijay Kumar. Studies on the effect of sex-hormones and prostaglandin A2 on kidney and adrenals of Indian palm squirrel, Funambulus pennanti. Meerut University.

10. Jadhav, Manik Laxmanrao. Studies on some aspects of physiology of the bivalve Lamellidens corrianus. Marathwada University.

11. Mastanaiah, S. NAD$^+$and NADP$^+$—specific dehydrogenases in amphibian skeletal muscle. Sri Venkateswara University.

12. Mathur, Vinod Behari. Radioprotective effect of 2-mercapto-propionylglycine (MPG) on the ileum of Swiss albino mice. University of Rajasthan.

13. Mittal, R.K. Histopathological and cytochemical studies with reference to heavy metal in a mammal. Meerut University.

14. Naresh Pal. Toxicity of a few synthetic detergents to some fresh water fishes alongwith histopathological and physiological alterations in certain tissues. Meerut University.

15. Ray, Rupendu. Studies on the haematoza of Indian amphibians. University of Calcutta.

16. Sharma, Bhuvanesh Kumar. A comparative study of blood, blood vessels and heart of Notopterus (Ham), Amphipnous cuchia (Ham) and Ophiocephalus punctatus (Bi). Meerut University.

17. Sharma, Mahesh Bali. Studies on the life cycle of the common house sparrow and its economic status with regard to agricultural crops in Meerut District of U.P., Meerut University.

18. Singh, Pancham. Studies on lesion Nematodes of cereals. Meerut University.

19. Singh, Rani. Studies on the cranial osteomyology of some Indian perciform fishes and taxonomy of leiognathids. University of Calcutta.

20. Surender Reddy, G. Biochemical and Physiological effects of certain insecticides on cockroach, Periplaneta americana L. Kakatiya University.

21. Tyagi, Alok Kumar. Pollutional studies of the river Krishna vis-a-vis selected aquatic biota and protection of fishes. Meerut University.

22. Verma, Rajesh. Adaptive research on light trap and spectral response studies of major groups of insect pests. University of Jabalpur.

23. Vinod Kumar. Investigations on the effect and biochemical mode of action of newly synthesised insect development inhibitors on phytophagous and stored products pests. University of Rajasthan.

Medical Sciences

1. Ray, Gaurgopal. An ergonomic evaluation of physical work performance as related to anthropometric and nutritional status and body composition of Indians. University of Calcutta.

Agriculture

1. Aggarwal, Suresh Chander. Effect of boron on growth and composition of wheat in relation to nitrogen and phosphorus. Haryana Agricultural University.

2. Bandyopadhyay, Ranajit. Interaction of soil with fungicidal activity in plant disease control. Haryana Agricultural University.

3. Gajendra Singh. Effect of soil moisture, fertility level and plant density on growth, yield and quality of early potato in Meerut region. Meerut University.

4. Jambhale, Narayan Dhondi. Cytogenetic studies in Okra, Abelmoschus-esculentus (L) Moench with reference to resistance to yellow vein mosaic. Marathwada Agricultural University.

5. Kartar Singh. Effect of various chemicals as pre-and post-harvest applications on shelf-life of guava at various temperatures. Haryana Agricultural University.

6. Kashyap, Khiali Ram. Effect of some growth retardants on the physiology, growth and fruiting of apple, Malus domestica Borkh plants. Himachal Pradesh Krishi Vishwa Vidyalaya.

7. Kaushik, Chhabil Das. Studies on leaf blight of mung, Phaseolus aureus Roxb. caused by Rhizoctonia bataticola (Taub.) Butler. Haryana Agricultural University.

8. Kehar Singh. Various responses of tomato and brinjal to sodium fluoride and sulphur dioxide toxicity. Meerut University.

9. Koteswara Rao, Surapaneni. Genetic improvement of yield in linseed, Linum usitatissimum Linn. Jawaharlal Nehru Krishi Vishwa Vidyalaya.

10. Nathu Ram. Studies on floral biology and compatibility behaviour in ber, Zizyphus mauritiana Lamk. Haryana Agricultural University.

11. Pandey, Padma Kant. Studies on viral and virus like diseases of the groundnut, Arachis hypogaea L crop in the Deccan: (I) (a) Groundnut stunt mottle virus, (b) Groundnut yellow-edge virus; and (II) Groundnut field chlorosis. Mahatma Phule Krishi Vidyapeeth.

12. Panwar, Jagdish Singh, Post-harvest physiology and storage behaviour of Ber fruit, Zizyphus mauritiana Lamk in relation to temperature and various treatments cvr (Umran & Kaithli). Haryana Agricultural University.

13. Sadhu, Taritkumar. Studies in nitrate and ammonium nutrition of crop plants. University of Calcutta.

14. Sharma, Surinder Kumar. Effect of simulated drought and sodium chloride on physiology and metabolism of cotton (Gossypium hirsutum L) and wheat (Triticum aestivum L) crops. Haryana Agricultural University.

15. Singh, Raj Kumar. Agronomic studies on two varieties of peas, Pisum sativum L. Meerut University.

16. Vaish, Chandra Prakash. Heterosis, combining ability and stability parameters in paddy, Oryza sativa L. Meerut University.

Veterinary Science

1. Nagalla, Krishna. Standardization and development of simpler techniques in quality evaluation of tropical forages. Haryana Agricultural University.

2. Ray, Birendranath. A possible role of sialic acid in reproduction in male animals. University of Calcutta.

3. Sharma, Nagendra. Effect of storage and cooking in lipids in poultry. Rohilkhand University.

4. Talukdar, R.P. Nutritional studies on water hyacinth, Eichornia crassipes as a component of pig ration. Rohilkhand University.

ADDITIONS TO AIU LIBRARY

Alkin, Marvin C. and others. *Using evaluations: Does evaluation make a difference?* London, Sage, 1979. 268p.

Annamalai University. *Annamalai University golden jubilee* 1929-79. Annamalainagar, Author, 1979. 68p.

Australian Vice-Chancellors' Committee, Canberra. *Verification of academic qualifications*, 1977. Canberra, Author, 1977. 7p.

Council of Ontario Universities, Ontario. *Constructive partnership; A university perspective; the report from the special committee on the interface study*. Ontario, Author, 1977. 60p.

Dore, R.P. Pre-vocational studies : A comment on recent developments in Ceylonese education. Brighton, University of Sussex, 1973. 22p.

Dreikurs, Rudolf and others. *Maintaining sanity in the classroom: Illustrated teaching techniques*. New York, Harper & Row. (c1971) xii, 338p.

Freire, Paulo. *Pedagogy in process : The letters to Guinea-Bissau*. London, Writers and Readers Publishing Cooperative, 1978, 178p.

India. Department of Science and Technology. *Handbook of research and development statistics* 1974-75. Delhi, Author, 1977. vi, 113p.

Khan, Mohd. Sharif and Khan, Mohd. Saleem. *Educational administration*. Delhi, Ashish, 1980. xi, 107p.

Knapper, Christopher Kay. *Evaluating instructional technology*. London, Croom Helm. (c1980) 163p.

Mathew, E.T. *University finances in India: A case study of the Kerala University*. Delhi, Sterling (c 1980) x, 120p.

Mazrui, Ali A. *African university as a multinational corporation: Comparative problems of penetration and dependency*. Brighton, University of Sussex, 1975. 24p.

Miles, H.B. *Some factors affecting attainment at* 18+: *A study of examination performance in British schools*. Oxford, Pergamon 1979. xix, 137p.

Pandit, H.N. *Curriculum load under three schemes of school education*. Delhi, N.C.E.R.T., 1977. ii, 19p.

————. *Indian educational system; Top heavy and bottom weak*. Delhi, N.C.E.R.T., 1977. 22p.

————. *Population growth and educational facilities in India*. Delhi, N.C.E.R.T., 1977. 19p.

————and Hans Raj. *School going population in India* 1971-2026. Delhi, N.C.E.R.T., 1977. 15p.

————and others. *Implementation of constitutional directives on education progress, problems and future strategy*. Delhi, N.C.E.R.T., 1977. 18p.

Powell, Arthur, G. *Uncertain profession: Harvard and the search for educational authority*. Cambridge, Harvard University Press, 1980. viii. 341p.

Pluckrose, Henry and Wilby, Peter, ed. *Education 2000*. London, Temple Smith, 1980. 188p.

Shah, A.B. and Bhan, Susheela, ed. *Non-formal education and the NAEP*. Delhi, Oxford University Press, 1980. viii, 245p.

Sharma, Motilal. *Planning and evaluating non-formal education: A systems model*. Ambala Cantt, The Indian Publications, 1980. 112p.

Tickoo, Champa. *Indian universities : A historical, comparative perspective*. Bombay, Orient Longman. (c1980) 197p.

Tiwari, Bhasker, Nath, ed. *Adult education and libraries*. Allahabad, Vohra Publishers' & Distributors, 1980. 151p.

Unesco. *Declaration on fundamental principles concerning the contribution of the mass media to strengthening peace and international understanding, to the promotion of human rights and to countering racialism apartheid and incitement to war*. Paris, Author (c1979). 15p.

————. International Commission for the Study of Communication Problems. *Aims and approaches to a new international communication order*. Paris, Author, 1978, 16p.

————. ————. *New world information order*. Paris, Author, 1978. 24p.

————. Regional Conference of Ministers of Education and Those Responsible for Economic Planning of Member States in Latin America and the Caribbean, Mexico City, 1979. *Unesco's activities in the sphere of education in the Latin American and Caribbean region since the conference. Caraballeda*, 1971. Paris, Author, 1979. 17p.

————. ————. *Education in the context of development in Latin America and the Caribbean*. Paris, Author, 1979. ii, 85p.

————. Regional Conference of Ministers of Education and Those Responsible for Economic Planning in Asia and Oceania, 4th, Colombo, 1978. *Education in Asia and Oceania: Progress and prospects*. Paris, Author, 1978. 102p.

UNIVERSITY OF RAJASTHAN
JAIPUR

Advertisement No. 1/81

Applications are invited (through proper channel in case of these who are already in employment) so as to reach this office on or before **20th February, 1981** in the prescribed form available from the Registrar's Office on pre-payment of Rs. 4/- (Rs. 3/- extra in case required by post) for the undermentioned posts:

1. **Librarian-cum-Professor of Library Science** in the grade of Rs. 1500-60-1800-100-2000-125/2-2500.
2. **Registrar** in the grade of Rs. 1400-50-1650-60-1830-70-1900 (likely to be revised).
3. **Controller of Examinations** in the grade of Rs. 1250-50-1700.
4. **Editor for Index India** in the grade of Rs. 1500-60-1800-100-2000.
5. **Press Manager** in the grade of Rs. 1150-50-1650.
6. **Lady Medical Officer** in the grade of Rs. 750-30-1020-40-1300-50-1350.
7. **Assistant Registrars** in the grade of Rs. 750-30-1020-40-1300-50-1350.
8. **Public Relations Officer** in the grade of Rs. 750-30-1020-40-1300-50-1350.
9. **Assistant Editor for Index India** in the grade of Rs. 700-40-1100-50-1300.
10. **Assistant Manager in the Press** in the grade of Rs. 750-30-1020-40-1300-50-1350.
11. **Aquatic Coach for the University Swimming Pool** in the grade of Rs. 590-20-810-25-1035.

The details of qualifications etc. may be obtained along with the prescribed application form or separately, as the candidate may desire. The benefits of Provident Fund, D.A. and other allowances will be admissible as per rules of the University, from time to time. The candidates, desiring to apply for more than one post, must send separate applications for each post. Candidates will be called for interview at their own expenses. Incomplete applications shall be rejected without making any reference.

Persons who had applied earlier for the above mentioned posts in response to earlier advertisements, need not apply again. They should, however, intimate to the University if they are still desirous to be considered for the post applied for on the basis of their earlier applications sent in response to the said advertisements and they also send the particulars of their additional qualifications and experience etc. acquired since then on plain paper by the aforesaid date. Unless such a categorical statement is received from an applicant, it will be deemed that the candidate is no longer interested.

Higher start may be given to deserving candidates. Retired persons need not apply. The University reserves to itself the right to consider candidates who might not have applied but who are otherwise eligible and suitable.

REGISTRAR

Indian school of Mines

DHANBAD-826004

Advt. No. 420001/81 **Dated Jan. 17, 1981.**

1. The Indian School of Mines, a 'deemed university' under UGC Act invites applications for recruitment to following faculty position :

Department	Post	Specialisation/ Background
(a) Mining Engg.	Asstt Professor—1	Rock Mechanics
	Lecturers—2	1. Mine Surveying 2. Mine Ventilation
(b) Petroleum Engineering	Professors—2 (one regular and one Plan)	1. Petroleum Engg. 2. Chemical Engg. Background (Plan)
	Asstt Professors—2 (Plan)	1. Chemical Engg Background 2. Mechanical Engg with work experience of Pet. Production Engg.
	Lecturer—1	Petroleum Engg
(c) Engineering & Mining Mech.	Professors—3	1. Electrical Engg 2. Drilling Engg 3. Mining Machinery
	Asstt Professors—2	1. Mechanical/ Workshop Engineering 2. Electrical Engg
	Lecturer—1	Mechanical/Electrical Engineering.
(d) Electronics & Instrumentation	Asstt Professor—1 (Temporary, likely to become permanent)	Electronics
(e) Applied Geology	Professor—1	Structural Geology
	Asstt Professors—3 (including one leave vacancy for 2 yrs)	1. Engineering Geology 2. Petrology & Photo-Chemistry 3. Mining/Ore Geology (Leave Vacancy)
(f) Chemistry, Fuel and Mineral Engg	Professor—1 (Chemistry)	Ceramic and Refractory/Corrosion Analytical.
	Lecturer—1 (Likely permanent vacancy)	Mineral Engg.
(g) Physics & Mathematics	Asstt Professor—1	Applied Mathematics

All posts are permanent except where shown otherwise.

2. Qualifications : Professors

An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research of which five years should have been in a position of high responsibility. Experience of guiding research (—in case of Science Humanities and Social Science subjects, at doctoral level).

OR

An outstanding Scholar/Engineer/Technologist with established reputation who has made significant contribution to knowledge/engineering practice.

Asstt Professors

(a) Good academic record with a Doctor's degree in a relevant field: Provided that candidates not possessing Ph.D. may be considered if they have to their credit suitable published or design/development work in an institution or in an industry.

(b) About five years experience of teaching and/or research and development of which three years should have been as Lecturer or in a position of responsibility.

(c) Evidence of having been actively engaged in (i) research, or (ii) innovation of teaching methods, or (iii) production of teaching material.

OR

In case of posts in Engineering subjects, candidates from the industry or professional fields should possess good academic record with recognised professional work of about seven years.

Lecturers (Engineering subjects)

(a) Master's degree in appropriate field.

(b) Consistently good academic record with a bachelor's degree in Engineering/Technology. First Class at Bachelor's and/or Master's degree level.

(c) One year's relevant professional experience outside academic/research institutions.

Provided that, having regard to the requirements of emerging fields and of developing inter-disciplinary programmes, the requirement Bachelor's degree in Engineering/Technology degree may be waived in the cases of otherwise well-qualified candidates.

Provided further that if a candidate who does not possess the one year professional experience aforesaid and/or the Master's degree, is appointed he shall be required to obtain the desired professional experience/Master's degree within a period of five years of his appointment failing which he shall not earn future increments until he fulfils the said requirements.

Lecturer : (Humanities/Social Science/Science/Applied Science subjects).

(a) A doctor's degree or research work of equally high standard.

(b) Consistently good academic record with 1st or high 2nd class (B on the seven-point scale). Master's or equivalent degree in a relevant subject.

Having regard to the need for developing inter-disciplinary programmes, the degrees in (a) and (b) above may be in subjects of relevance.

Provided that if the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (suitable weightage being given to M Phil or equivalent degree or research work of quality may be appointed provided he has done research

(Contd. on page 116)

JAMIA MILLIA ISLAMIA

JAMIA NAGAR, NEW DELHI-110025

Advt. No. 6/80-81

Applications on the prescribed form which can be had from the Registrar's Office on any day (except Holidays) between 10 a.m. and 12 Noon or by sending a self addressed and stamped (35 Paise) envelope of 10 x 23 c.m., are invited along with the crossed Indian Postal Order or Bank Draft of Rs. 3/- (Re. 1/- for S. No. 18 & 19) for the following posts so as to reach the Registrar by 1:00 p.m. on **7-3-81**.

Ability to teach in Urdu and Hindi is a desirable qualification for teaching posts and knowledge of Urdu and Hindi is essential for non-teaching posts.

D.A., C.C.A., H.R.A., P.F., Gratuity, Pension and other benefits will be given according to Jamia rules.

Relaxation in any of the qualifications may be made on the recommendation of the Selection Committee in exceptional cases.

1. One Reader in Arabic (Rs. 1200-1900) leave vacancy

Good academic record with a first or high second class Master's Degree of an Indian University or an equivalent foreign qualification. A Doctorate Degree or equivalent published work in the subject concerned, and independent published work of a high standard in addition to the published work referred to above and at least 5 years' experience of teaching Hons./Post-graduate classes or 10 years' experience of teaching under-graduate classes.

2. Five Lecturers in Education (Rs. 700-1600)

1. English (permanent)
2. Geography with specialisation in Advanced Cartography and/or Quantitative techniques (permanent).
3. Agriculture with specialisation in Horticulture (permanent).
4. Education with specialisation in Educational & Vocational Guidance at Masters' Degree level (leave vacancy).
5. Education with specialisation in research methodology at Masters' degree level (leave vacancy).

(a) A Doctors' degree in Education or research work of an equally high standard; and,

(b) Consistently good acadamic record with 1st or high 2nd class Master's degree in the relevant subject or an equivalent degree of a foreign university.

OR

(a) A Doctors' degree in the relevant subject or research work of an equally high standard; and,

(b) Consistently good academic record with an M. Phil. degree in Education or an equivalent degree of a foreign university.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed above.

3. **Five Lecturers (Rs. 700-1600) one each in Sociology, Hindu Ethics (permanent), two in Mathematics and one in Physical Chemistry (leave vacancies).**

(a) A Doctor's degree or research work of an equally high standard; and, (b) Consistently good academic record with 1st or high 2nd class Master's degree in a relevant subject or an equivalent degree of a foreign university.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed above.

For the post of Lecturer in Sociology experience in teaching/training in Applied Social Sciences projects would be a desirable qualification.

For the post of Lecturer in Hindu Ethics candidates should have M.A. in Philosophy with specialisation in any branch of Hindu Philosophy. OR M.A. in Comparative Reilgions/Religious Studies with specialisation of Hindu Religion.

For the two posts of Lecturer in Mathematics (leave vacancies) preference will be given to the candidates who have the specialisation/ability to teach (1) Operational Research and (2) Statics and Hydrostatics.

4. **One Director of Physical Education (Rs. 700-1300) temporary likely to be made permanent.**

Master's degree in Physical Education or Master's degree in Arts/Science with a Postgraduate Diploma in Physical Education.

5. **One Lecturer (Rs. 700-1300): Department of Technology (leave vacancy).**

At least second class Degree in Civil Engineering, with two years teaching experience in some Engineering Institute.

6. **Two PGTs (Rs. 550-900) One each in Sociology and Persian Jamia Hr. Sec. School (permanent).**

Essential

(1) Master's degree of a recognised University in the subject concerned. (ii) University Degree or Diploma in teaching. OR 3 years teaching experience in a college OR 7 years teaching experience in a High or Hr. Secondary School.

7. **One PGT in Home Science (Rs. 550-900) Jamia Hr. Sec. School (permanent).**

Essential

A good Master's Degree in Home Science.

Desirable

A University degree/diploma in teaching. OR Adequate experience of teaching in the subject in a college of High/Higher Sec. School.

8. **Three TGTs (Rs. 440-750), Two in General and one in English, Jamia Middle School (permanent).**

Essential

(1) At least second class degree of a recognised University in the subject concerned. (2) A University degree/diploma in teaching.

Desirable

(1) At least two years experience in teaching Middle/High classes of a High/Hr. Sec. School. (2) Knowledge of Urdu.

For the two posts of T.G.T.s (General) candidates should have any three subjects out of Geography, History, Civics, Economics, English, Urdu, Hindi in B.A.

9. **One TGT in Islamiat (Rs. 440-750), Jamia Hr. Sec. School (permanent).**

(1) At least second class degree of a recognised university in Islamic Studies.

OR

Second class degree of a Madrasa, recognised by the Jamia for graduate studies.

(2) A University degree/diploma in teaching.

OR

A good second class Master's degree in Islamic Studies.

10. **One Instructor in Batik (Rs. 440-750) (Permanent), Deptt. of F.A. & Craft.**

Essential

A first or high second class Diploma in the particular craft of recognised institute.

Desirable

(1) Experience of work in the particular craft at a Professional level. (2) High School or its equivalent. (3) Working knowledge of Hindi/Urdu as in other posts of Jamia.

11. **One Workshop Instructor in Welding & Sheet Metal (Rs. 440-750), Deptt. of Technology (permanent).**

Matric or Secondary School Certificate with Certificate in concerned Trade awarded by NCTVT and 3 years' experience in Welding & Sheet Metal.

OR

Matric with 7 years practical experience in Welding & Sheet Metal.

12. **Two Lady PTIs (Rs. 425-640); one each in Jamia Hr. Sec. School and Jamia Middle School (permanent).**

Matric with certificate in physical training.

13. **One Craft Teacher in Agriculture (Rs. 425-640), Jamia Middle School (permanent).**

Matric with certificate in Agriculture.

14. **One Conservation Assistant, Dr. Z.H. Library (Rs. 380-560). temporary likely to be made permanent.**

Essential

B.A. and Certificate in Library Science with experience of preserving documents and knowledge of typing. Knowledge of Urdu and Hindi essential.

Indian School of Mines

(Contd. from page 115)

work for at least two years or has practical experience in a research laboratory/organisation, on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he shall not earn future increments until he fulfils the said requirements.

3. Pay Allowances and Age-Limits

Post	Upper age limit	Scale of Pay	Salary at	
			Min. of Scale	Max. of Scale
Professor	50 yrs.	1500-2500	2050.00	3200.00
Asstt Prof	40 yrs.	1200-1900	1750.00	2450.00
Lecturer	35 yrs.	700-1600	1154.50	2150.00

A higher start in the scale may be given in special and deserving cases. Upper age limit relaxable in respect of candidates otherwise considered specially suitable.

4. Detailed information and prescribed application form may be obtained free of charge from the office of the Registrar, Indian School of Mines, Dhanbad-826004, by sending a self-addressed envelope (of size 30 cm x 12 cm) duly affixed with stamps worth Rs. 3.45.

5. The application in the prescribed form complete in all respects should reach the undersigned on or before **2nd March 1981**.

S.P. Varma
REGISTRAR

Desirable

Certificate of short term course of preservation of books, manuscripts and archives from the National Archives.

15. **One Stenographer (Rs. 425-640). (Permanent).**

Higher Secondary with a minimum speed of 40 w.p.m. in English typing and 120 w.p.m. in Short-hand in English. Knowledge of Urdu.

Desirable

(1) Graduate with previous experience of noting and drafting in English.

(2) Knowledge of Hindi.

16. **One Teacher in Islamiat (Rs. 330-560), Jamia Middle School (leave vacancy).**

Essential

Second class degree of a Madrasa, recognised by the Jamia for undergraduate studies.

Desirable

Two years experience in teaching of Islamiat in a Middle School/or its equivalent classes.

17. **One Jr. Lab. Assistant (Rs. 260-400), Deptt. of Physics (leave vacancy).**

Higher Secondary with Science Subjects and 5 years' experience as Lab. Attendant.

18. **One Wireman (Rs. 210-290), Building Department (permanent).**

Essential

(a) Wireman's (Grade II) Certificate of Competency. (b) At least two years experience of internal Wiring Work, installation of Consumers service mains and meter Board.

Desirable

Knowledge of Urdu & Hindi.

19. **Two Lab. Attendants (Rs. 210-270); one each in the Deptt. of Teachers, Training & Non-Formal Education (permanent) and Physics (temporary likely to be made permanent), one reserved for Scheduled Caste/Tribe subject to availability.**

Matriculation or an equivalent Examination with Science subjects.

Desirable

Should have worked in a laboratory for at least six months.

S.H. Naqvi
OSD/Offg. REGISTRAR

HARYANA AGRICULTURAL UNIVERSITY
HISSAR

Advertisement No. 1/81

APPLICATIONS invited for following posts. Higher start outstanding qualifications, experience and achievements. Benefits of Contributory Provident Fund and leave etc. according to University Rules. Applications of the candidates already in service must reach through proper channel upto the fixed date. Applications on prescribed form (obtainable free by sending self-addressed unstamped envelope size 23 x 10 cms, to Assistant Registrar (R), HAU, Hissar) accompanied by prescribed fee of Rs. 10/- in the form of Crossed Postal Order in the name of Assistant Registrar (R), HAU, Hissar payable at HAU Post Office Hissar should reach the Registrar by 9.3.81. The applicants must possess prescribed qualifications and experience on the last date for receipt of applications. The envelope containing application must be superscribed as "APPLICATION FORM FOR THE POST OF——

1. **Professor of Veterinary Pharmacology** : (One): Essential: (i) Second class B.V. Sc. & A.H. degree. (ii) Second class M.V. Sc. in Pharmacology. (iii) Ph. D. in Vety. Pharmacology. (iv) Atleast ten years experience of teaching and research in Vety. Pharmacology out of which preferably 5 years should be as Associate Professor or of equivalent rank. Desirable: Advanced training in Physiological Chemistry/Toxicology."

2. **Professor of Feed Technology** : (One) : Essential: (i) Second class B.V. Sc. & A.H./B.Sc. (An. Sc.)/B.Sc. (Ag.)/ B.Sc. (Dairying). (ii) Second class Master's degree with specialisation in Animal Nutrition. (iii) Ph. D. in Animal Nutrition. (iv) Ten years experience of teaching/research/extension in Animal Nutrition out of which preferably 5 years should be as Associate Professor or of equivalent rank. Desirable: (i) Adequate experience in the procurement, handling and processing of feeds. (ii) Training in Feed Technology.

3. **Professor of Veterinary Medicine** : (One) : Essential: (i) Second class B.V. Sc./B.V. Sc. & A.H. degree. (ii) Second class M.V. Sc. in Vety. Medicine. (iii) Ph. D. in Veterinary Medicine. (iv) Atleast 10 years experience of teaching/research in the field of Vety. Medicine out of which preferably five years should be as Associate Professor or of equivalent rank. Desirable; Advanced training in Veterinary Clinical Medicine.

4. **Senior Breeder (Feed & Forage Sorghum)** : (One): (i) Second class B.Sc. (Ag.)/B.Sc. (ii) Second class M.Sc. (Ag.)/M.Sc. in Plant Breeding/ Genetics/Ag. Botany. (iii) Ph. D. in Plant Breeding/Genetics/Ag. Botany. (iv) Ten years experience of Research/ Teaching/Extension in Plant Breeding preferably on Forages out of which at least five years should be as Associate Professor or of equivalent rank.

5. **Associate Professor of Physical Chemistry** : (One): (i) Second class B.Sc. (ii) Second class M.Sc. in Chemistry, preferably in Physical Chemistry. (iii) Ph. D. in Chemistry with specialization in Physical Chemistry. (iv) Five years experience of teaching/research in Physical Chemistry.

6. **Associate Professor Foods & Dietetics** : (One): (i) Second class B.Sc. (Home Sc.)/B.Sc. (Agri.)/B.Sc. (ii) Second class M.Sc. in Foods and Nutrition Dietetics/Institutional Management OR Diploma in Dietetics/ Institutional Management. (iii) Ph. D. in Foods & Nutrition/Dietetics/ Institutional Management. (iv) Five years experience of Teaching/Research in Foods & Nutrition/Dietetics/ Institutional Management OR equivalent experience of working in a dietary Department of a hospital.

7. **Scientist (Child Development)** : (One): (i) Second class B.Sc. Home Sc. (Hons.) in Child Development/B.Sc. Home Sc. (ii) Second class M.Sc. in Home Sc. Child Development. (iii) Ph. D. in Child Development. (iv) Five years experience of teaching/ research/extension in the field of Child Development.

8. **Scientist (Home Management)** : (One): Essential: (i) Second class B.Sc. Home Sc./B.Sc. Home Sc. (Hons) (ii) Second class M.Sc. in Home Sc. with specialization in Home Management. (iii) Ph. D. in Home Management. (iv) Five years experience of teaching/research/extension in Home Management. Desirable: (i) Experience in guiding M.Sc. students.

9. **Extension Specialist (Home Science)** : (One): Essential: (i) Second Class B.Sc. in Home Science. (ii) Second class M.Sc. in Home Science/Extension Education (iii) Five years experience of extension/teaching/research in Home Science. Desirable: (i) Ph. D. in Home Science. (ii) Familiarity with experience and capacity in organising women's programmes in rural areas. (iii) Persons without Ph. D. will have to obtain Ph. D. within 5 years of the appointment unless extended in the interest of University work, otherwise their future increments will be stopped.

10. **Extension Specialist (Entomology)** : (One): (i) Second class B.Sc. (Ag.). (ii) Second Class M.Sc. (Ag.) in Agril. Entomology. (iii) Ph. D. in Agricultural Entomology. (iv) Five years experience of teaching/research/ extension in the field of Agril. Entomology.

11. **Scientist (Entomology)** : (One): (i) Second class B.Sc. (Agr.)/B.Sc. (ii) Second class M.Sc. (Agr.) in Entomology. (iii) Ph. D. in Entomology. (iv) Five years experience of research/ teaching/extension in Entomology preferably in Pulses.

12. **Associate Professor of Agricultural Economics** : (One): Essential: (i) Second class B.Sc. (Ag.)/B.A. (ii) Second class M.Sc. (Ag.) in Agricultural Economics. (iii) Ph. D. in Agricultural Economics preferably with specialization in Agricultural Marketing. (iv) Five years experience of teaching/research/extension in Agricultural Economics. Desirable: Training in Econometrics with reference to Agricultural Marketing.

13. **Associate Professor of Dairying** : (One): Essential: (i) Second class B.Sc. (An. Sc.)/ B.Sc. (Dairying)/B.V.Sc. & A.H./B.Sc. (Ag.). (ii) Second class M.Sc. Animal Sciences/Animal Husbandry and Dairying. (iii) Ph. D. in Animal Sciences with specialisation in Diary Cattle Production. (iv) Five years teaching/research/extension experience in Dairy Cattle Production and Management. Desirable: (i) Capa-

city to plan and organise trainings and demonstrations of dairy farming. (ii) Ability to impart trainings in Hindi.

14. **Associate Professor (Training)** : (One): Essential: (i) Second class B.Sc. (Ag.). (ii) Second class M.Sc. (Ag.). (iii) Ph. D. in any discipline of Agricultural sciences including Extension Education. (iv) Five years teaching/research/extension experience in the subject. Desirable: (i) Experience of planning, organising, conducting/coordinating trainings in institutions of repute.

15. Assistant Scientist (Child Development): (One): (Discipline-Home Science with specialisation in Child Development).

16. Assistant Scientist (Department of Vety. Microbiology): (Two): (Discipline-Vety. Microbiology/Bact. with specialisation in Virology/Immunology.

17. Assistant Scientist (Vety. Gynaecology & Obstetrics) : (One): (Discipline-Vety).

18. Assistant Professor (Vety. Gynaecology & Obstetrics) : (One): (Gynaecology & Obstetrics).

19. Assistant Scientist (Chemistry & Biochemistry Department) : (One): (Disciplire-Biochemistry).

20. Assistant Research Officer (Vety. Parasitology) : (One): (Discipline Parasitology with specialization in Entomology).

21. Assistant Professor (Vety. Parasitology) : (One): (Discipline Vety. Parasitology).

22. Assistant Professor (Vety. Entomology): (One) :

23. Assistant Scientist (Microbiology) : (One) : ,Discipline-Microbiology).

24. Assistant Disease Investigation Officers : (Four) : (Discipline-Vety. Epidemiology/Pathology /Bacteriology/ Parasitology or preventive medicine.

25. Assistant Immunologist : (One): (Discipline : Vety. Bacteriology or related field).

26. Assistant Pathologist (Chlamydiosis) : (One)

27. Assistant Scientist (Vety. Pathology) : (One): (Discipline-Vety. Pathology.

28. Assistant Professor (Vety. Pathology): (Two).

29. Assistant Research Officer (Pica in Camels) : (Discipline-Vety. Medicine/Pathology/Parasitology).

30. Assistant Scientist (Vety, Medicine) : (One) : (Disciplone-Vety. Medicine/Protozoology/Bacteriology).

31. Assistant Bacteriologist : (One): (Discipline-Vety. Medicine/Vety. Bacteriology).

32. Assistant Professor (Epidemiology) : (One): (Discipline-Epidemiology or Pathology/Preventive Medicine/Microbiology (including Bacteriology) Parasitology with specialization in Epidemiology).

33. Assistant Professor (Vety. Public Health) : (One) : (Discipline-Vety. Public Health/Pathology/ Preventive Medicine/Microbiology/ Parasitology).

34. Assistant Professors (Animal Nutrition) : (Two): (Discipline-Animal Nutrition).

35. Assistant Professor (Meat Technology) : (One): (Discipline-Animal Products Technology).

36. Assistant Statistician : (One): (Discipline-Statistics).

37. District Extension Specialist (Plant Pathology) : (Two): (Discipline-Plant Pathology).

38. District Extension Specialist (Entomology) (Discipline-Entomology). (Three including one leave vacancy).

39. District Extension Specialist (Veterinary) : (Eight) : (Discipline any branch of Vety. Science).

40. District Extension Specialist vacancy): (Discipline-Agronomy).

41. District Extension Specialist (Nematology): (One) : Discipline-Nematology).

42. Assistant Extension Training Specialist: (One) : (Discipline-Extension Education/Agril. Extn.).

43. Assistant Scientist (Extension) : (One): Agril. Extension).

44. Assistant Professor (Animal Science) : (Two) : (Discipline-Any branch of Animal Science)

45. Assistant Research Scientist (Surgery & Radiology) : (Two) : (Discipline-Vety.(Surgery & Radiology).

46. Assistant Professor (Surgery) : (One) :

47. Assistant Scientist (Genetics Department) : (Two) : (Discipline-G Genetics).

48. Assistant Professor Agricultural Meteorology : (One) : (Discipline-Physics/Agril. Meteorology/Meteorology with training in Agril. Meteorology).

49. Assistant Scientist (Entomology Department) : (Three) : Discipline-Chemistry/Agricultural Chemicals.

50. Assistant Scientist (Home Management) : (One) : (Discipline-Home Science with specialisation in Home Management).

51. Assistant Virologist: (One) : (Discipline-Vety. Bacteriology/Virology)

52. Assistant Breeder (Maize) : (One)- (Discipline-Plan Breeding/ Genetics).

53. Assistant Professor (Horticulture) : (One) : (Disciplire-Horticulture).

54. Assistant Scientist (Foods & Nutrition) : (One) : (Discipline-Foods & Nutrition/Biochemistry).

55. Assistant Professor (Fruit & Vegetable Preservation) (One): (Discipline-Hort/Veg. Food Tech.(Home Sc. (Food & Nutrition) with specialisation in Fruit & Vegetatble Preservation.

Qualifications (For posts at Sr. Nos. 15 to 55) :

(i) Atleast second class at Bachelor's level. (ii) Master's degree in the first class or with an OGPA of not less than 3.2/4.00 or equivalent in the disciplines mentioned against each post. OR at least second class Master's degree followed by Ph. D. in the disciplines mentioned against each post.

56. **Assistant Professor of Hindi & Haryanvi Culture** : (One): Essential: (i) Second class B.A. with Hindi. (ii) First class M.A. in Hindi OR (iii) Atleast second class M.A. followed by Ph. D. in Hindi literature. Desirable: Sound Knowledge of Sanskrit, Haryanvi folklore and culture.

57. **Assistant Professor SA & VC Classes** : (One): Essential: (i) Second class D.V. Sc. & A.H. (ii) Atleast five years experience in Teaching/Research/Extension. Desirable: M.V. Sc. degree in any discipling of Vety. Science. '

58. **Assistant Professor of Physical Education (Wrestling)** : (One): Essential: (i) Bachelor's degree with atleast 1 year course leading to diploma in Physical Education. (ii) N.S./N.I.S. diploma in concerned sport. (iii) M.P.E. regular course/M.P.E. (Summer course/ M.E. Ed. (1) year course) / M.A. in Physical Education (2 year course)/ M.P. Ed. (2-year course). (iv) Atleast 3 years coaching/teaching experience in a College/University. (v) Participation in Inter-University / State / National/ International level in concerned sport. Desirable: (i) Qualified official in the concerned sport. (ii) Publication of Books/Articles in Journals. (iii) Coaching Inter-Varsity/State/National/ International teams.

59. **Instructor (Vegetable Crops)** : (One): (i) Second class B.Sc. (Ag.). (ii) Second class M.Sc. Olericulture/ Horticulture with specialization in Vegetable Crops.

60. **Instructor in Dairy Farming** : (One) : Essential: (i) Second class B.Sc. (An.Sc.)/B.Sc. (Dairying)/ B.V.Sc. & A.H./B.Sc. (Ag.). (ii) Second class M.Sc. in Livestock Production and Management specializing in Dairy Cattle Production.

Note

1. For posts at Sr. Nos. 1 to 14, one or more qualifications relaxable in case of candidates found otherwise outstanding.

2. Special weightage will be given to extension experience possessed by the candidates, for posts in disciplines amenable to extension.

3. For posts at Sr. Nos. 15 to 58, one or more qualifications relexable in case of candidates found othersie very suitable.

4. For posts at Sr. Nos. 15 to 57, persons who do not possess Ph.D. at the time of their selection shall not be allowed to cross the stage of Rs. 1300/- in the scale of Rs. 700-40-1100-50-1600.

5. No. of posts mentioned against each post is likely to vary.

6. 20% and 10% vacancies of Assistant Professors, Instructors and equivalent are reserved for Scheduled Castes and Backward Classes candidates respectively, if suitable candidates from these categories are available.

Pay Scales & Sr. No. of post		Total emoluments at the initial of the payscale (exclusive of House Rent).
1 to 4	1500-60-1800-100-2000-125/2-2500.	Rs. 2050/-
5 to 14	1200-50-1300-60-1900.	Rs. 1705/-
15 to 58	700-40-1100-50-1600.	Rs. 1110/-
59 & 60	550-25-750/30-900.	Rs. 860/-

REGISTRAR

UNIVERSITY OF POONA

Applications in the prescribed form are invited for the following posts **on or before 14th March, 1981**.

1. Reader in Statistics, in Descriptive Linguistics, in Applied Psychology. One post each.

2. Lecturer in Statistics, in Inorganic Chemistry, in Geography, in Library Science, in Experimental Psychology. One post each.

Qualifications: (i) General, (ii) Minimum

1. Reader

(i) Must possess fairly long experience of teaching of Post-Graduate classes and guiding research in the respective subjects.

(ii) As prescribed by the University for recognition as Post-Graduate Teacher (By Research).

2. Lecturer

(i) Must have a Doctor's Degree or published work of an equally high standard and consistently good academic record with First or High Second Class (B in the seven point scale). Master's Degree in a relevant subject or an equivalent Degree of a foreign University.

(ii) As prescribed by the University for recognition as Post-Graduate Teacher (By papers).

(1) Reader in Statistics
Qualifications: Essential

M.A./M.Sc. in Statistics/Biometry with at least II class and Ph.D. in Statistics/Biometry or equivalent published research work.

Qualifications: Desirable

Specialization in: Stochastic Processes, Multivariate Analysis, Operations Research, Demography, Design of Experiments or Theory of Sampling Designs.

(2) Reader in Descriptive Linguistics
Qualifications

Specialization in Generative Transformational Grammar and Semantics.

(3) Reader in Applied Psychology
Qualifications : Essential

1. Ph. D. and independent published Research Work.

2. Specialization in Applied Psychology either at the Master's level or Doctoral level.

3. Recognised Work Research in Applied Psychology,

(4) Lecturer in Statistics

Qualifications : Essential

1. M.A./M.Sc. in Statistics/Biometry with at least second class.

2. Ph. D. or equivalent published research work.

Qualifications : Desirable

Specialization in one of the following branches: Statistical Inference, Operations Research Probability Theory, Demography, Design of Experments or Statistical Genetics.

(5) Lecturer in Inorganic Chemistry
Qualifications: Essential

M.Sc. with 1st class or Higher second class (B+) Master's Degree in Inorganic Chemistry or an equivalent degree of foreign University.

Qualifications: Desirable

Doctor's Degree/published work of a high standard.

Specialization

Group theory and its applications in Inorganic Chemistry or catalysis.

(5) Lecturer in Geography

Qualifications: Essential

Specialization in Economic Geography or Geomorphology.

(7) Lecturer in Library Science
Qualifications: Essential

M.Lib. (Second Class) with atleast three years' teaching experience at the post-Graduate level in the Department of Library Science.

Qualifications: Desirable

1. Experience of work in University or Research Library.

2. Knowledge of Marathi.

(8) Lecturer in Experimental Psychology

Qualifications: Essential

Must have a Doctor's degree or published work of an equally high standard and consistently good academic record with first or high second class (B+) Masters degree in Psychology or an equivalent degree of a foreign University.

Qualifications: Desirable

Specialization in clinical or counselling psychology or child guidance.

Scales of Pay:
Reader : Rs. 1200-50-1300-60-1900
Lecturer : Rs. 700-40-1100-50-1600

plus allowances admissible under University rules.

Age Limit

Readers below the age of 45 years and Lecturers below 35 years.

The prescribed forms and detailed information available on request with (1) a self-addressed envelope (23 cm x 10 cm) bearing postal stamps worth Rs. 1.25 and (2) Rs. 10/- in cash or by a Postal Order drawn in the name of the Registrar, separately, for each post.

(a) Conditions relaxable/higher starting salary admissible in exceptionally capable candidates.

(b) In the case of Lecturers, other things being equal, preference will be given to candidates belonging to Scheduled Castes (including Scheduled Castes converts to Buddhism) and Scheduled Tribes.

S.P. Bhosale
REGISTRAR

KONKAN KRISHI VIDYAPEETH

DAPOLI, DIST. : RATNAGIRI

Advertisement No. EST/A-I/Advtt. XVII/of 1981

Applications in the prescribed form are invited for the undermentioned posts. The application forms can be obtained from the Registrar, Konkan Krishi Vidyapeeth, Dapoli (Pin Code: 415 712), Dist. Ratnagiri, Maharashtra State, on sending a self-addressed envelope (4" x 9") with the postage of 60 paise and crossed Indian Postal Order of the value of Re 1/- (Rupee one only) payable to the Comptroller, Konkan Krishi Vidyapeeth, Dapoli, Dist,: Ratnagiri. Completed application forms accompaised by a crossed Indian Postal Order worth Rs. 5/- (Rupees five only) payable to the Comptroller, Konkan Krishi Vidyapeeth, Dapoli, Dist.: Ratnagiri, Maharashtra State, should reach this office not later than **20th March, 1981**. Applications received after due date will not be considered. A separate application with separate fee is required for each post. Government Servants and Staff working under the local bodies should necessarily apply through proper channel. However, an advance copy of the application may be sent by them to this office within the prescribed time-limit.

(I) The Vice-Chancellor's Office, Konkan Krishi Vidyapeeth, Dapoli

1. Registrar. One post.
2. Director of Students' Walfare: One post.
3. University Engineer: One post.

(II) The Faculty of Agriculture

4. Professor of Agril. Chemistry: One post.
5. Professor of Agril. Botany: One post.

6. Asstt. Professor of Agronomy: Two Posts.

7. Asstt. Professor of Agril. Botany: One post.

8. Asstt. Professor of Agril. Entomology: Two posts (One post reserved for S.C./S.T./D.T. & N.T.)

9. Asstt. Professor of Veterinary. Science: One post (Reserved for S.C./S.T./D.T. & N.T.).

11. Asstt. Professor of Agril. Economics: One post (Reserved for S.C./S.T./D.T. & N.T.).

11. Vegetable Breeder: One post (Reserved for S.C./S.T./D.T. & N.T.).

12. Asstt. Professor of Horticulture: (Scheme for "Development of Extension Education"): One post.

INDIAN COUNCIL OF AGRICULTURAL RESEARCH SCHEMES

(A) Co-ordinated Scheme for Research on Water Management

13. Junior Scientist (Soil Physics): One post (Reserved for S.C./S.T./D.T. & N.T.).

14. Junior Scientist (Agril. Engineering): One post.

(B) All India Co-ordinated Project for Improvement of Tuber Crops:

15. Junior Agronomist: One post.

(C) All India Co-ordinated Rice Improvement Project:

16. Entomologist: One post

(D) Model Agronomic Research Experiments

17. Junior Agronomist: One post.

(E) All India Co-ordinated Coconut Improvement Project

18. Research Officer: One post.

(F) All India Co-ordinated Spices and Cashewnut Improvement Project

19. Horticulturist: One post.

20. Junior Entomologist: One post.

(III) Faculty of Veterinary Science

21. Professor of Pathology: One post.

22. Research Officer: One post.

23. Assistant Professor of Bacteriology: Two posts. (One post reserved for S.C./S.T./D.T. & N.T.).

24. Assistant Professor of Anatomy: One post.

25. Assistant Professor of Pharmacology: One post (Reserved for S.C./S.T./D.T. & N.T.).

26. Assistant Professor of Pathology: One post (Reserved for S.C./S.T./D.T. & N.T.).

27. Gynaecologist: One post,

28. Surgeon: One post.

29. Physician: One post.

30. Pathologist: One post.

31. Officer, In-Charge, Livestock Suprevisors Training Centre: One post.

Pay Scales

1. For the post at Sr. No. 1. Rs. 1100-50-1550-75-1700. (Likely to be revised).

2. For the post at Sr. No. 2. Rs. 680-40-1000-EB-50-1500. (Likely to be revised).

3. For the post at Sr. No. 3. Rs. 1000-50-1500.

4. For the posts at Sr. No. 4, 5 and 21. Rs. 1500-60-1800-100-2000-125/2-2500.

5. For the post at Sr. No. 22. Rs. 1200-50-1300-60-1900.

6. For the posts at Sr. No. 16 and 19. Rs. 1100-50-1300-60-1600.

7. For the posts at Sr. No. 6, 7, 8, 9, 10, 11, 12, 13, 14, 23, 24, 25, 26 and 31. Rs. 700-40-1100-50-1600.

8. For the posts at Sr. No. 15, 17, 18 and 20. Rs. 700-40-1100-50-1300.

9. For the posts at Sr. No. 27, 28, 29 and 30. Rs. 680-40-1000-50-1250.

Qualifications

For the post at Sr. No. 1

Essential

Bachelor's degree at least with a Second Class in Arts/Commerce/Science/Agriculture/Veterinary Science/Fisheries /Law / Engineering, of any Statutory University/Institute.

and

At least, ten years' experience in College Teaching and/or Research and/or Extension Education and/or Administration.

Experience in Administration shall be:

(i) In a Class-I or higher post under the Government of India or any State Government.

AND/OR

(ii) In a post corresponding to or higher than the post of Deputy Registrar under a Statutory University/Institute.

Desirable

(i) Master's degree in Agriculture/Veterinary Science/Fisheries/ Law.

(ii) Experience of work in any Statutory University Office.

For the post at Sr. No. 2

Essential

Master's degree in Agriculture/Veterinary Science/Arts/Commerce or Science of a recognised University.

AND

At least, five years' experience in teaching or research or extension education in a College or in an Institute of equivalent status.

Desirable

At least two years' experience in organising Students' Welfare activities in a College or an Institute of equivalent status and guiding co-curricular activities of Students.

For the post at Sr. No. 3

Degree in Civil Engineering and experience of ten years' in a senior capacity in the execution of Civil Works.

For the posts at Sr. No. 4, 5 and 21

Essential

After Ph. D. in the respective subject, seven years' experience in teaching or research as evidenced by published research papers or in extension education.

OR

After Master's degree in the respective subject, ten years' experience in teaching or research as evidenced by published research papers or in extension education.

Desirable

Experience in technical administration, ability to initiate and organise research.

For the posts at Sr. No. 16 and 19

After Ph. D. in the respective subject, two years' experience in teaching or research as evidenced by published research papers or in extension education.

OR

After Master's degree in the respective subject, five years' experience in teaching or research as evidenced by published research papers or in extension education.

OR

Master's degree in the respective subject, with ten years' total experience in teaching or research as evidenced by published research papers or in extension education.

For the post at Sr. No. 22

After Ph. D. in the subject of Pathology/Parasitology/Microbiology/Physiology/Gynaecology, two years' experience in teaching or research as evidenced by published research papers or in extension education.

OR

After M.V.Sc. degree in Pathology/Parasitology/Microbiology / Physiology/Gynaecology, five years' experience in teaching or research as evidenced by published research papers or in extension education.

OR

M.V.Sc. degree in the subject of Pathology/Parasitology/ Microbiology/Gynaecology, with ten years' total experience in teaching or research as evidenced by the published research papers or in extension education.

Desirable

Training or experience in Radio Isotope work or it's equivalent.

For the posts at Sr. No. 6, 7, 8, 9, 10, 11, 12, 13, 15, 17, 18, 20, 23, 24, 25, 26, 27, 28, 29 and 30

Ph. D. in the respective subject.

OR

After Master's degree in the respective subject, two years' experience in teaching or research as evidenced by published research papers or in extension education.

OR

Master's degree in the respective subject, with a first class or equivalent C.G.P.A. either at Bachelor's degree or Master's degree level.

Note

1. For the posts at Sr. No. 15 and 18, the respective subject are Horticulture.

2. For the post at Sr. No. 17, the respective subject is Agronomy.

3. For the post at Sr. No. 27, the respective subject is Animal Reproduction.

4. For the post at Sr. No. 28, the respective subject is Surgery.

5. For the post at Sr. No. 29, the respective subject is Medicine.

6. For the post at Sr. No. 30, the respective subject is Pathology/ Bacteriology/Parasitology.

7. For the post at Sr. No. 13, the respective subject is Soil Science.

8. For the post at Sr. No. 27, 28, 29 and 30, the administrative or field experience in Veterinary Hospital/ Polyclinic is desirable.

9. For the post at Sr. No. 9, the respective subject means Ph.D./Master's degree in any branch of Veterinary Science.

10. Knowledge of Marathi is essential for the post at Sr. No. 12.

For the post at Sr. No. 14

Essential

B.Sc. (Agril. Engineering) or M.Sc. (Agri.) in Agril. Engineering of any recognised University at least in Second Class.

Preference

1. M. Tech. in Agril. Engineering.
2. Basic degree in Agriculture.

For the post at Sr. No. 31

B.V.Sc. & A.H. degree in at least Second Class or equivalent with ten years' experience as Veterinary Officer/ Research Assistant/Senior Research Assistant/Demonstrator or its equivalent grade in the Government or Semi-Government office.

OR

M.V. Sc. with First Class or equivalent C.G.P.A. either at Bachelor's or at Master's degree level.

Note

1. Maxmum age-limit as on 20-3-81, will ordinarily, be 40 years for the posts mentioned at Sr. No. 1, 2, 3, 4, 5, 16, 19, 21, 22 and 30 years for remaining posts. Maximum age-limit is relaxable upto 5 years in deserving cases at the discretion of the University. The age-limit is not applicable to persons already in the services of this University.

2. The pay scales of the above posts carry equal allowances admissible as per the rules of the University.

3. Age relaxation for candidates belonging to S.C./S.T./D.T. & N.T./ O.B.C. as per the State Governments' Rules.

4. If the response from highly qualified and more experienced candidates is adequate, those with less qualifications or experience, may not be called for interview, even though, they fulfil the minimum qualifications laid down for the posts.

5. The fact that the posts are advertised does not mean that all the posts will be filled in.

6. The application to bereceived through proper channel must reach this office within 15 days from the last date of submission of application.

7. The posts at Sr. No. 13 to 20, are sanctioned by the Indian Council of Agricultural Research for a limited period.

8. Number of posts may be increased or decreased.

9. Selected candidates can be posted and transferred at any of the Campuses/Centres under the jurisdiction of the University.

10. Nomenclature of the posts can be changed by the University, as and when need arises.

11. Incomplete applications and applications received after the last date, shall not be taken into consideration.

12. The applicant should satisfy all the requirements, i.e. qualifications, experience, etc. on or before **20-3-1981**.

13. More eligibility does not vest any right in the candidate for being called for the interview.

CANVASSING IN ANY FORM WILL COMPLETELY DISQUALIFY A CANDIDATE FOR EMPLOYMENT UNDER THIS UNIVERSITY.

R.B. Kumbhar
REGISTRAR

Modern Biology and Medical Advance

(Continued from page 97)

chronic carriers of the hepatitis B virus. The link between the hepatitis B virus infection and liver cancer has received further support from the reports published by four groups of independent workers which show that the DNA of the hepatitis B virus is integrated into the genome liver cancer cells (Journal of Virology, 33, 795, 1980 and Nature, *286*, pp. 531, 533 and 535, 1980). Although this does not prove that the virus is responsible for producing the cancer, it is once again an additional piece of evidence to support the connection between the two. If from all the evidence that is presented so far, hepatitis B infection is a prerequisite for the development of liver cancer subsequently, then the elimination of that infection through hepatitis B vaccine should also eliminate the development of liver cancer. Already, the 1980 Nobel Laureate Dr. Gilbert of Harvard University and others working in Edinburough and Heidelberg have reported that they have been able to insert hepatitis viral genes into bacteria and both hepatitis B surface antigen and a protein from the virus core are being produced by the bacteria.

Conclusion

The new technologies will take time to move from laboratory scale to large scale production. But from the kind of rush that one sees in this area, it can be expected that the transition from experimental to clinical level application will take place sooner than later. This is all to the good but in all this, what guarantee is there that these products for the health of man will be accessible to those in greatest need at prices that they can afford? The history of science and technology repeats itself—each major advance enhancing the dependence of developing countries upon the developed ones.

It is sometimes said that basic research and high technology are for developed countries and that appropriate technology will do for developing countries. While I am second to none in upholding the importance of appropriate technology for developing countries, no country, developed or developing, can do without basic research and no sustained development is possible without it. In this particular case, India has a unique opportunity to develop a solid programme of basic research in modern biology and a whole range of skills in molecular biology to resolve some of our health problems and to speed up overall development. Finally, the fast moving events in molecular biology must be coupled with human wisdom in their application, if we are to reap the full benefits of this technology without paying a heavy price. The earlier concerns about the safety of gene splicing techniques have now somewhat receded to the background, but the question of careful use of the new and powerful products available in large quantities still remains. Their safety will have to be very carefully evaluated. A whole range of ethical issues will have to be faced. The question of gene therapy, for example, will raise a number of such issues. Ethical guidelines in such matters are much more difficult to develop than guidelines of safety.

The new Biology cannot remain isolated from social issues. The future lies in broadening the horizon of interplay of bio-medical and socio-medical research and in trans-disciplinary synthesis of science and technology with society's needs and human values in a changing world. ☐

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SHASHIS/274

INDIAN INSTITUTE OF TECHNOLOGY

P.O. I.I.T.
BOMBAY-400076

Advertisement No. A-16/81

Applications are invited for the following permanent posts at this Institute, in the prescribed form obtainable free of charge from the Registrar, Indian Institute of Technology, P.O. IIT, Powai, Bombay-400 076 on request accompanied by self-addressed envelope (25 cm x 10 cm). Persons emplcyed in Government/Semi-Government Organisation or Educational Institutions must apply through proper channel. Indian candidates abroad may apply on plain paper in duplicate. The posts carry allowances such as D.A., C.C.A., H.R.A. as per rules of the Institute which at present correspord to those admissible to the Central Government Employees stationed at Bombay. Completed applications should reach the Registrar, I.I.T., Powai, Bombay-400076 on or before **5th March, 1981**.

1. **Assistant Professor**
   Scale of Pay: Rs. 1200-50-1300-60-1900.
2. **Dy. Librarian**
   Scale of Pay: Rs. 1100-50-1600.
3. **Asstt. Workshop Supdt.**
   Scale of Pay: Rs. 700-40-900-EB-40-1100-50-1300.
4. **Development Engineer**
   Scale of Pay: Rs. 700-40-900-EB-40-1100-50-1300.

Qualifications & Experience

1. **Assistant Professor—Department of Chemical Engineering**

Good academic record with a Doctor's degree in the relevant field. About 5 years experience of teaching and/or research and development.

Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in the institution or in an industry.

Areas of Specialisation

Process Control/Process Dynamics/Mathematical Modelling etc.

2. **Deputy Librarian**

Good Master's degree of a recognised University plus Degree/Diploma in Library Science, or Good Bachelor's degree with Master's degree in Library Science. Ten years' experiece in a responsible capacity in a University level Library. Should be well conversant with the day to day working of the Library and should have keen interest in Library Management including Aquisitions, Technical processing, Library Budgeting, Documentation & Information etc. In the case of candidate with considerable experience and proven ability, the requirement of formal qualification may be relaxed.

3. **Assistant Workshop Superintendent** (Central Repair Organisation Electrical Engineering Department).

- (i) Degree in Electrical Engg./Electronics Engineering/Telecommunication Engineering/Instrumentation Engineering with training in Electronics or equivalent.
- (ii) About one year's practical training and four years experience in repair design, development of Electronics, Electrical and other instruments in an establishment of repute.
- (iii) Should be able to guide practical training of students and Apprentices.
- (iv) Should have knowledge in regard to purchase, storage, and issue of Engg. materials, equipment and accessories.

Diploma holders with 10 years experience in the relevant field will also be considered.

4. **Development Engineer : (Industrial Design Centre)**

Degree in Mechanical/Electrical Engineering with 5 years experience in product development, thorough knowledge of various materials and processes and costing. Experience in developing mechanism and prototype from the Design stage to the production model essential. Should be capable of giving materials and processes specifications.

Job Description

He will be responsible for developing working prototypes of various products designed at the Centre and to bring them upto a stage where they could be handed over for production.

Experience relaxable in case of candidates of proven ability.

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

P.O I.I.T Powai
BOMBAY-400076

Advertisement No. A-17/81

Applications are invited for the posts of Assistant Professors and Lecturers in the Computer Centre of this Institute, in the prescribed form obtainable free of charge from the Registrar, Indian Institute of Technology, P.O. IIT., Powai, Bombay-400076 on request accompanied by self-addressed envelope (25 cm x 10 cm). Persons employed in Government/Semi-Government Organisations or Educational Institutions must apply through proper channel. Indian candidates abroad may apply on plain paper in duplicate. The posts carry allowances such as D.A., C.C.A., H.R.A. as per rules of the Institute which at present correspond to those admissible to the Central Government Employees stationed at Bombay. Completed applications should reach the Registrar, I.I.T., Powai, Bombay-400076 on or before **5th March, 1981**.

1. **Assistant Professor**
   Scale of pay: Rs.1200-50-1300-60-1900.
2. **Lecturer**
   Scale of Pay :Rs. 700-40-1100-50-1600.

Qualifications & Experience

1. **Assistant Professor**

Good academic record with a Doctor's degree in the relevant field. About 5 years experience of teaching and/or research and development.

Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in an Institution or in an industry.

2. **Lecturer**

Master's degree in appropriate field in engineering/technology. Consistently good academic record with a bachelor's degree in Engineering/Technology. First class at Bachelor's degree and/or Master's degree level.

The requirement of Engineering/technology degree may be waived in the case of otherwise well qualified candidates.

Area of Specialisation : (Any one or more of the following)

Computer Hardware and Software, Theory of Computation, Artificial Intelligence, Pattern recognition, Speach and Signal Processing, OR and Management Systems, Picture Processing, Computer Communication, Simulations and Modelling, Microprocessors applications.

SAMBALPUR UNIVERSITY JYOTI VIHAR

BURLA

Notification No. 1582/Estt-II.
Dated 24-1-81

Corrigendum to the Advertisement No. 12678/Estt-II Dated. 9-9-1980

The following be read after the word 'establishment' in item a (ii) of para III.

"or 5 years practical experience in an engineering organisation."

All other conditions remaining the same the last date of receipt of applications is extended upto **25-2-1981**.

Candidates who have applied in response to the advertisement No. 12678/Estt-II Dt. 9-9-1980 need not aply again.

By order of Syndicate
N. Mohapatra
REGISTRAR

UNIVERSITY OF INDORE

INDORE-452001

No. Estt/III(2)/81 Dated 29-1-1981

Corrigendum

In the University's Advertisement No. Estt/III(2)/81 dated 16-1-1981 the desirable qualifications for the post of Lecturer in Economics be read as under :

"Specialisation in any branch of Econometrics, Advanced Economic Statistics or Industrial Economics."

D.S. Joshi
REGISTRAR

NAGPUR UNIVERSITY
NAGPUR

Adv. No. GA/N/G/993 February 4, 1981

Employment Notice

(Combined Advertisement 'O' and 'P'—See detailed note below)

Applications are invited for the following posts in the University Departments, so as to reach the undersigned **on or before 7th March, 1981**.

1. **Professor**

Fine Art, English, Education, Education (New Mathematics), Dr. E. Raghavendra Rao Memorial Professor of Political Science, Oil Technology; Bio-Chemistry (one each).

2. **Reader**

Law (Three—one each in International, Constitutional and Commercial), Political Science, Chemical Engineering, Chemistry (LIT), Chemistry (Organic Chemistry), Physics (one each).

3. **Lecturer**

English, Bengali, Education (PGTD), Pharmacy, Hindi, Zoology; Law (PGTD); Home Science; Sanskrit (One each) Botany (3 Posts).

Laxminarayan Institute of Technology

Cellulose Technology; Chemical Technology Chemical Engineering; Chemical Technology (one each); Engineering (Two).

4. **Director**, Laxminarayan Institute of Technology.

Scales of Pay

(i) **Professor/Director (L T)**
Rs. 1500-60-1800-100-2000-125/2-2500.

(ii) **Reader :** Rs. 1200-50-1300-60-1900.

(iii) **Lecturer**: Rs. 700-40-1100-50-1600.

All the posts carry usual allowances admissible under the University rules in force from time to time.

Qualifications

1. **Director** (L.I.T.)

(a) An eminent scholar with published work of high quality actively engaged in research in the subject concerned;

(b) Ten years' experience of teaching and/or research;

(c) Proved experience of guiding research doctoral level.

2. **Reader**

Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

Not less than five year's experience of teaching and/or research. The condition may be relaxed in the case of candidate with outstanding research work.

3. **Lecturer**

(a) A Doctor's degree or research work of an equally high standard; and

(b) Consistently good academic record with first or high second class (B in seven point scale) Master's degree in a relevant subject or an equivalent degree of a foreign University.

Having that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M. Phil. or equivalent degree or research work of quality) may be **appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation** on the conditions that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

The Selection Committee may relax the prescribed qualifications in favour of a candidate recommended by it, provided no candidate having prescribed qualifications is available or even if available is not found sutiable, for reasons to be recorded by it.

At the first instance all the above posts as per advertisement 'O' will be treated as reserved for backward communities, viz: S.C./S.T./V.J./N.T./O.B.C. and if suitable candidates are not found from the backward communities, candidates as per advertisement 'P' will be considered on general merit.

Separate applications are necessary for both 'O' and 'P' advertisement, as advertisement 'O' is exclusively for backward communities.

Eight copies of prescribed application forms, with particulars of details of qualifications, specialisations, etc. will be supplied on payment of non-refundable fee of Rs. 10/- by crossed Indian Postal Order payable to the undersigned along with self addressed envelope (12 x 25 cm.).

Last date for supply of Blank Form **5th March, 1981**.

B.Y. Aher
REGISTRAR

NAGPUR UNIVERSJTY
NAGPUR

No.GA/N/G/994 February 4, 1981.

EMPLOYMENT NOTICE

(Combined Advertisement 'Q' and 'R'—See detailed note below)

Applications are invited for the following posts in the University, so as to reach the undersigned **on or before 7th March, 1981**.

Principal Scientific Officer
AND
Placement & Training Officer

Scales of Pay

(i) P.S.O. Rs.1500-60-1800-100-2000/-.
(ii) Placement and Training Officer. Rs. 700-40-1100-50-1300/-.

All posts carry usual allowances admissible under the University rules in force from time to time.

Qualifications

I. **Principal Scientific Officer**

Essential: second class post graduate degree in Engineering OR Science with atleast 10 years experience with:
(i) Proved ability in designing & building major instruments.
(ii) Capacity to lead & direct R and D activity in instrumentation.
(iii) Working knowledge with modern analytical instruments.

II. **Placement & Training Officer**
(a) High Second Class Bachelor's Degree in Chemical Engineering/Chemical Technology or Pharmacy (B+Consistently good academic record).
(b) Master's degree in any of the above branches,
(c) Industrial experience is desirable.

Note : In the case of internal candidates (only for the Post of P.S.O. with significant contributions in repair and maintenance of modern instruments, the above qualifications may be relaxed).

At the first instance the post of P.S.O. as per advertisement 'Q' will be treated as reserved for backward communities, viz. S.C./S.T./V.J./N.T./O.B.C. and if suitable candidates are not found from backward communities, candidates as per advertisement 'R' will be considered on general merit.

Separate applications are necessary for both 'Q' and 'R' advertisement, as advertisement 'Q' is exclusively for backward communities.

The post of placement & training officer is reserved for candidates from Scheduled Tribes only.

Eight copies of prescribed application forms, with particulars of details of qualifications, specialisations etc. will be supplied on payment of non-refundable fee of Rs. 10/- by crossed Indian Postal Order payable to the undersigned along with self addressed envelope (12 x 25 cm.)

Last date for supply of Blank Form : **5th March, 1981**.

REGISTRAR

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Information Service
2 9 MAY 1981
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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH MARCH 1, 1981

Mr. Hans Schwier, Minister for Science & Research of the German State of North Rhine Westphalia (third from left) who inaugurated the Exhibition of Indian Books and Postage Stamps at the Ruhr University, Bochum, is seen here with Dr. A.M. Khusro (second from left), Indian Ambassador to Bonn.

ASSOCIATION OF INDIAN UNIVERSITIES PUBLICATION

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Editor: ANJNI KUMAR

Financing of Universities

For some years past the University Finances have been a matter of grave concern and constant criticism. Finances of many Universities are in the doldrums. Many Universities have drawn overdrafts of huge amounts on which they have to pay interest which itself runs into lakhs of rupees. Many others have mortgaged their lands, buildings and other assets for raising funds. Some Universities had to go to the extent of even raising loans against the amount lying in the University Provident Fund. This is a sorry state of affairs and if remedial measures are not taken in time, the very future of higher education will be at stake.

The major problem faced by almost every University in this country is that on the one hand costs are rising at a fast rate while on the other the growth rate of income is almost steady. This gap between the rates of growth of income and expenditure is widening year after year as a result of which the working funds of the Universities are being gradually eroded and these funds instead of keeping pace with outlay are falling completely out of step with it and the very financial viability of the Universities is threatened.

Under these circumstances, the tendency on the part of the Universities is to turn to the Government and ask for more and more grant-in-aid but that is more easily asked than achieved. The Government's resource position and national priorities precludes the possibility of a substantially increase in Governmental assistance to the Universities on a growing basis. It is unlikely that the present pattern of educational budgeting by State and Union Governments would need go a material change in the immediate future. It will be observed from Appendix 'A' the Governmental expenses on education and student enrolment that the later has overtaken the former. In 1960-61 only 1.6% of the G.N.P. was spent on education at all level by the Central and State Governments. In 1978-79 the percentage rose to 3.1 and it is expected to rise only marginal to 3.3% in 1979-80. However, during the same period student enrolment in colleges and Universities alone has increased from 5.50 lakhs to 24.31 lakhs i.e. approximately five time. If one tries to co-relate educational expenses and student enrolment, one would find that the situation has deteriorated due to falling value of the rupee and also in terms of rapidly rising numbers of educated un-employed. Governments are therefore need severe constrain in the matter of coming to the rescue of the Universities. In such situation complete dependence on Government for augmenting resources by way of educational grant is neither practical nor advisable. If the basic objective of grant-in-aid system is to be taken as supplementation to

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A note presented by Bombay University at the 56th Annual Meeting of the AIU held at Hyderabad.

financial efforts by the grantee institution, the Universities will have necessarily to find out various other avenues for supplementing their financial needs and convert existing sources of revenue into a more productive ones. All these would require ingenuity, dynamism and attitude of inconventionalism and a will for experimentation.

Besides grant-in-aid from Governments, the main source of income of any University, can be divided into three broad categories:

(1) Receipts from students such as tuition fees, examination fees, other fees, hostel rent etc.

(2) Receipts from some of the activities of a University, like University Press, Computer Centre, Halls, auditoria, publications etc.

(3) Contribution from the private sector such as donations, endowments etc.

Fees received from students

The present level of tuition fees is considerably low and the benefit of this subsidy goes in a large measure to students coming from those sections of the society who can well afford to pay higher fees. If the general principle that a recipient of higher education should bear a substantial fee in full cost of higher education is expected there would be considerable scope for increasing incomes of the Universities. The benefit of subsidy should go only to the financially weaker sections of the society and Scheduled Caste, Scheduled Tribes and other backward classes. However, this is a sensitive area and one must proceed cautiously. But the time has certainly come to examine the current structure of fees in relation to the unit cost of education and arrive at a new fee structure which reflects more truly and accurately relations between the two. It would not be then difficult to convince all concerned of the need to rise tuition fees without hurting vulnerable sections of the society. However, once such a scientific study is made the increase in fees proposed on its basis should be implemented with firmness and with full Governmental support.

Receipts from the university's other activities

In the light of the limited scope for augmenting income from the existing sources, it has become imperative to look out for new avenues like commercial activities undertaken by Universities with a view to earning big incomes. This is not a totally new suggestion. For example, in United Kingdom most Universities have entered the field of business and some of them have set up profit making limited companies. It is estimated thar during the academic year 1971-72 more than £5,70,000/- were ploughed back into the educational system by way of profit from industries run by the Universities. The idea is new in this country; but if it is accepted, the Universities could enter into selected fields of production, research and services and could generate surplus income by using their own existing resources of Plant Machineries, Buildings and Laboratories. It is not necessary here to go into the details of such activities or the manner of organising them. Some or the other activities which can be run on a commercial lines are indicated below :

(i) **University Press** : Owning of a Press by a University would not only mean substantial saving in the printing charges of University but would also prove to be a productive potential source of income for the University as it can generate sizeable revenue from outside work. There should, however, be optimum utilisation of both the machines and man-power and proper stores control. As far as possible, the Press should be run in shifts so as to minimise the idele capacity. All the outward jobs should be charged at commercial rates while the University work should be charged at a little lower rate. The Press should be equipped with modern automatic machines with a view to raising operational efficiency.

(ii) **Computer centre** : Like Press, Computer Centre can also be run on profit basis. The Computer time can be made available for industries for preparing their pay sheets, balance sheets, stores accounting, etc.

(iii) **Halls & auditoria of the university**: This is a major source of income for the University if properly exploited. With an increase in the social, cultural, political and commercial activities in the country, there has been a great demand for halls and auditoriums for holding seminars, symposiums, public meetings, cultural programmes, exhibitions etc. As there is a dearth of halls, the bookings for the above purposes could fetch sizeable income for the Universities. The halls can also be given for holding examinations conducted by the outside bodies. If it is not very inconvenient, halls should also be allowed to be utilised for marriage receptions. Hire charges should be comparable with those charged elsewhere. With a view to getting maximum revenue from this source there should be proper upkeep and maintenance of halls and auditoriums.

(iv) **Correspondence courses**: The Universities can start various courses of their own including training programmes for public sector on All India basis and on State level competitive examinations where social welfare principle does not come in the way of charging higher fee which can certainly be provided remunerative. Many correspondence courses in the private sectors make huge profits and many private correspondence and training courses units like British Institute, Datamatic Centre and Bhavan's have branches numbering 25 to 30 in the different cities in India. Number of such activities can be suggested and worked out. However, its pre-requisite would be devised and suitable organisational pattern of authority to institutional heads as independent has not been accepted so far by the traditional Universities.

(v) **Consultancy services**: Instead of permitting individual members of the teaching staff to undertake consultancy work, the Universities may organise their own consultancy services as experts in specialised branches of knowledge would be available under one roof and the industries would be happy to take advantage of such services. The teachers used as consultants can be suitably remunerated and the balance credited to the University's account. In the United States of America, the consultancy work is a major activity undertaken by Universities and there is no reason why Indian Universities cannot do the same.

(vi) **Contribution from private sector:** Donations and endowments from the private sector constitute another important sources of revenue. Donations for research and development activities receive tax benefits and therefore, more money has begun to come into the Universities for R & D programmes. It would be prudent on the part of the Government if similar tax concessions are offered to all types of donations to the Universities. One can then expect a substantial flow of private money into the Universities giving much needed relief to the scares and already strained governmental resources.

One would also like to suggest the establishment of following institutions for strengthening the financial position of the Universities:

Inter University Finance Corporation

In order to get ways and means advances and the long term capital and to mobilise resources by collecting ideal funds from the Charitable Institutions, individuals etc., and for the purpose of investments, the Inter University Finance Corporation can go along with it.

C.F.T.R.I., MYS

Planning Co-ordination Committee

To review each of the projects and to prepare pilot project schemes and feasibility report of deciding acceptability of the projects be undertaken by the Planning Co-ordination Committee.

Finance Committee

To scrutinise the financial implications of each project and to recommend for its financing to the Inter University Finance Corporation, a body consisting of the expert needs to be constituted. The committee would examine the feasibility of such projects.

To conclude, an unorthodox approach is what is urgently needed if one desires University finances to improve rapidly in order to give Universities greater financial independence and through it greater academic autonomy. ☐

Appendix 'A'

Student enrolment : College and University and Expenditure on Education

Year	Number (figure in lakh)	Expenditure (Rs. in crores)		Total	Per cent of GNP
		Central Govt.	State Govt.		
1960-61	5.57	44	195	239	1.6
1961-62	6.64	26	235	261	1.6
1962-63	7.52	23	251	279	1.6
1963-64	8.42	31	279	310	1.6
1964-65	9.50	42	319	361	1.6
1965-66	10.67	49	373	422	1.8
1966-67	11.91	96	420	516	1.9
1967-68	13.70	112	356	468	1.5
1968-69	15.66	123	402	525	1.6
1969-70	17.93	137	680	817	2.2
1970-71	19.54	159	793	952	2.4
1971-72	20-65	178	887	1065	2.5
1972-73	21.68	195	1034 (RE)	1248	2.7
1973-74	22.25	193	1152 (RE)	1363	2.4
1974-75	23.67	288	1405	1693	2.5
1975-76	24.26	356	1634	1980	2.7
1976-77	24.32	396	1800	2190	2.8
1977-78	—	426	2048	2474	2.8
1978-79	—	484 (RE)	2342 (RE)	2826	3.1 (a)
1979-80	—	528 (BE)	2611 (BE)	3139	3.3 (a)

BE—Budget Estimate; RE=Revised Estimate (a)=Estimate

Equality of Opportunity in Education and Scholarship Schemes

C. B. Padmanabhan*

A number of scholarships programmes are being implemented both by the Central Government and State Governments and Union Territories in India for the purpose of achieving equality of opportunity in education. But it is necessary to look at them from time to time and find out how well they are achieving these objectives. The object of this paper is to look at some of the problems that arise in the implementation of the scholarship programmes. Attention is limited to only 3 scholarship programmes which are implemented by the Ministry of Education, Government of India and they are Rural Talent Search Scheme for secondary school students, National Merit and National Loan scholarships.

Present position of the scholarship schemes

In 1961-62, the Government of India started the national scholarship scheme for the award of 2400 scholarships for post-matric studies covering 5 per cent of the students who have more than 60 per cent marks in school leaving and first degree examinations, The number of scholarships have been increasing from year to year and in 1980-81 according to the Ministry of Education it has risen to 23,000 covering about 8 per cent and 12 per cent of the students securing over 60 per cent in school leaving and first degree stage respectively. The scholarship is payable to those with 60 per cent marks and above and whose parental income is equal to or less than Rs. 500 a month.

In addition, a loan scholarship scheme also was started in 1963 by the Government of India of varying values between Rs. 720 and Rs. 1750 per year at present depending on the course of study for meritorious students with less than Rs. 500 parental income. However, for post-graduate work there is no limitation of income. Up to 1979-80 a sum of Rs. 58 crores has been given as loans. During 1979-80, 20,000 loan scholarships have been awarded and for 1980-81 the same number has been allotted. Till 1979-80 a total of 4.6 crores have been recovered.

The Government of India has also been implementing through the Ministry of Education a third scholarship since 1971-72 for the development of rural talents. Under this scheme 10,000 scholarships that is at the rate of 2 scholarships per community development block were awarded till 1976-77. During 1977-78 15,000 scholarships at 3 per community development block were awarded. During 1978-79 and 1979-80, 2400 and 21,000 scholarships respectively distributed at 4 scholarships per community development block, 2 scholarships per tribal development block and one scholarship each to a talented Scheduled Caste child in each community development block with 20 per cent and above Scheduled Caste population have been awarded. Under this scheme for scholars residing in hostels or approved boarding houses Rs. 1,000 per year is being given and for day scholars Rs. 500 per annum has been given. For students studying in schools of their own choice Rs. 250 per annum will be given and if the schools did not charge any fees Rs. 150 per annum will be given,

Progress of this scheme by States in India

We found that the number of scholarships both sanctioned and awarded have increased in all the States in India. For example, the national scholarship at the secondary stage for talented children from rural areas are meant to make children compete only among those belonging to the same or similar socio-economic background. In Maharashtra in 1971-72 the total number of scholarships were only 800 and they have gone up to 2738 in 1979-80. The amount disbursed has gone up from Rs. 4 lakhs to Rs 8 lakhs. But there is great disparity between the number of boys and girls scholars being 2154 and 584 only among girls. There are fluctuations in the number of scholarships renewed which go to show that there is need for watching the performance of scholars and ensure that the objectives of mobilisation of talents from each of the rural block is achieved. In some States the implementation of the scheme is decentralised by handing it over to the Regional and District level under the control of the Directorate of Education.

It is found that so far Karnataka has spent Rs. 2,47,604, Delhi Rs. 64,450, Orissa Rs. 108,37,170, Punjab Rs. 12,86,383, Sikkim Rs. 5,250, Haryana Rs. 8,61,027, Chandigarh Rs. 9,410, Andaman and Nicobar Islands Rs. 94,140, Andhra Pradesh Rs. 12,56,205, Gujarat Rs. 85,34,407, Pondicherry Rs. 1,00,900, Arunachal Pradesh Rs 7,86,569 and Tripura Rs. 87,866.

The beneficiaries of the scheme

Who are the beneficiaries of the scholarship scheme? Are they really talented? Are they nurtured and allowed to develop? Are the talented children also left out due to inadequate numbber of scholarships and are their growth prevented by insufficient amount of scholarships? These questions call for further investigation.

We have to note the socio-sconomic situations of the students who benefit from the scholarship programmes, i. e. what is the occupations of the parents of the students who get the scholarships—how many

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Fellow, NIEPA, New Delhi.

belonging to working class and how many belonging to professions. Usually there will be very few who belong to working class families. Most of them may belong to house holds of professionals. The larger the number of students from working class or similar occupations greater is the success of the scheme of equalisation of educational opportunities. The larger the number of students from rural areas greater is the success.

The scholarship schemes have the two-fold objectives of mobilising talents and enabling poor students to continue their studies and not allow their poverty to be the stumbling block.

The rural talent search scheme has the objectives of mobilising talents, nurturing them and allow such students to develop this to their full potentialities. Once such talented students are identified their further development should be taken care of by providing for special schools with good teachers.

Many States in India have found that such students have done well in subsequent public examinations. In certain States like Andhra Pradesh there are special schools of residential types. In many States certain schools are approved on the basis of accepted criteria of their quality. The amount of scholarships is different depending on whether the student is studying in an approved or non-approved school. Of course, the rate of scholarships are higher in approved schools.

Indeed the scheme has been found beneficial so far as it goes. But it does not go far. For one thing each State follows its own method in identifying talents. Most of them conduct their own examinations on the basis of the results of which awards are made. It is necessary to conduct separate type of examinations for identifying talents like the one that NCERT is conducting on Science Talent Search. It is also necessary to give some thought to what kind of talents are being promoted and there should be some linkage with the requirements of talents for national development. Secondly the examinations are held at the end of class VII or VIII by which time most of the rural children would have dropped out. It is well known that in rural areas many children dropped out even before they complete class IV or V. It is, therefore, necessary to consider the possibility of identifying rural talents even earlier and in any case teacher training programmes must have elements which will enable a teacher to give special attention to identification and mobilisation of talents especially in rural areas.

National merit and national loan scholarship schemes

The national merit and loan scholarships are awarded for students on the basis of the results of the examination conducted by different secondary school boards. There have not been many investigations as to what the merit scholars are doing after they finish their studies, how well they perform and to what group they belong in terms of their parents income and occupations. In regard to loan scholarships there is also the additional question of repayment of loans by students. It has been found that so far a sum of Rs. 58 crores has been spent as loan and a total of Rs. 4.6 crores have recovered.

Towards an equitable system of financing higher education

Are the amount of scholarships sufficient in terms of the number of students to whom they are given and the amouut of each scholarship? This is a very important question which has to be considered. In this connection it is necessary to consider a number of related issues in regard to the financing of higher education in India and what should be the proper balance between government expenditure and private contributions. For example, what level and form should public subsidy of education take and what is the justification for this subsidy? Is it possible to base the level of subsidy on the income of the recipients? Should financial assistance be given directly to institutions as is mostly done now in order to enable them to keep the level of fees low or the students directly? In fact, it is necessary to think of several methods of subsidising education like subsidies to institutions, to students in the form of unconditional grants, to selected students in the form of means tested grants or in the form of loans at low or no interest rates or direct subsidies to students in the form of meals and accommodation at price deliberately fixed below market price or tax concessions to parents for meeting educational expenses. There should be a conscious and deliberate search for an equitable system of financing of higher education in India if equality of opportunity is to be meaningfully enforced.

An important pre-requisite for this purpose is the availability of data. In each States of India and within each State by districts and blocks by rural and urban there should be information as to what percentage of those students who have got 60% marks or above actually gets scholarships. Too much sanctity cannot be attached to marks alone because very often all Boards of Secondary Education in Indian States find it necessary to give grace marks. Therefore, it has to be supplemented by other methods of identifying merits. Information should also be collected on levels of income of parents of at least the students who are admitted for examinations. Further, it is necessary to gather information on the private expenditure incurred by families of the students for their education. In this connection one can make use of the findings of private educational expenditure incurred by the families as contained in the National Sample Survey data collected by Central Statistical Organisation of India.

There should be a cell attached to the Directorate of Education for each State to monitor the progress of scholarship schemes and at least an annual seminar of the officers of the State Governments and of Education Ministry should be held to discuss the ways and means of improving the implementation of these scholarship programmes such as one that National Institute of Educational Planning and Administration had recently organised at the instance of the Ministry of Education. ☐

CONVOCATION

University education as apprenticeship in life

Our life on earth is an adventure in existence and education is its guide book. In fact, education at the University level should be regarded as the first apprenticeship in life. The aim of education so far has come to mean imparting information or skills in some selected subject in order to enable the students to pass examinations and acquire a degree which has become a passport in life. To any mind the aim of education is not merely to turn out men with teaching efficiency or scientific proficiency, but of character and disciplined way of life. As professor Whitehead said : "Education is what remains with you after you have left the portals of the university and burnt all your books". Tennyson said, "Knowledge comes but wisdom lingers."

So, what remains in your mind, after you leave the portals of this institute and have forgotten the details of the subjects you have studied is the true knowledge which you carry with you in your future career.

From ancient times our society has given a high place of honour to the teacher and the teaching profession. The aim of a good teacher is not merely acquisition and dissemination of information but also to see that he communicates true knowledge to students sincerely and completely. It is expected that he will be truthful, objective and impartial in his assessment. In these days when caste, religion and language and regional feelings surfaced and are spreading fast affecting the healthy growth of educational institutions, a true teacher should rise above all these man-made distinctions and be able to preach and practice universal brotherhood. In his personal dealings with his colleagues, he should exemplify the cardinal principles of equality and fraternity. As a friend, philosopher and guide, it should be his constant endeavour to be involved in the lives of his students, to work ceaselessly to transmit not merely knowledge but the desire to learn and finally to help build the character and conduct of students by himself setting a worthy example. Nothing less can teach knowledge and wisdom, nothing less can truly educate our younger generation.

In the pre-independence period every citizen was inspired by the ideal that we should achieve Swarajya at all costs by making great sacrifices. There were great leaders like Mahatma Gandhi and Pandit Jawaharlal Nehru, who guided the destiny of the nation which has ultimately achieved independence in 1947. Younger generation today are not inspired by higher ideals in life such as the ideals in serving the nation in order to achieve economic independence and social justice. The fading of such ideals gradually took place during the last three decades. Young men and women today should be imbued with the new ideal of service to the nation in the social, economic and educational fields. The war against poverty, hunger, disease, ignorance and squallor has to be fought with no less vehemence and sacrifice than that against Foreign Aggression. I do hope that in our institutions of higher learning this spirit of service to the Nation and its people will be inculcated in all our students in practice by participating in constructive programmes like the National Service Scheme, National Adult Education and other extension activities.

No nation which is not disciplined in every walk of life can make any significant progress. In the last few years we witnessed in every aspect of our civilized life, certain degeneration in the matter of discipline. Discipline does not mean merely obeying the orders of the superiors or conforming to the established rules of an organised society. It also means disciplining the body and mind. Day in and day out, we see the sad spectacle of indiscipline in every walk of our life. No country can achieve heights of greatness unless its people are well-disciplined and have a high sense of civic duty. Student community should learn this important lesson as part of their learning and training. If a nation has to progress well, there must be a high sense of dignity of labour. From the childhood, the students may be made to understand that there is nothing degrading in manual labour. Universities and colleges should provide opportunities for self-help, selfless service to society and dignity of labour in the various activities in campus life. Our programmes like N.C.C. and N.S.S. should also lead to the inculcation of this ideal in our student community.

One of the most neglected aspects of college life is the physical health and well-being of the students. Students, particularly in the higher educational institutions should participate in games, sports and athletics. This is reflected in the sad state of performance of our sportsmen participating in Olympic, Asian and other International games. The health of the nation depends on the well-being and health of the individuals. Attempts should be made in all our colleges and universities to see that the students regularly participate in games and sports and also imbibe true sportsman spirit. In this respect, I think a lead should be given by the teaching community who should also participate in such activities alongwith the students.

Let me say that the education of the students is never complete and will not end when the student leaves the portals of the university. In a sense, true education commences from the time when they enter the wide world seeking opportunities and facing challenges. A celebrated alchemist Parselsus said that, "No man finds his teacher in the class-room nor his master at the fire side." In all the future endeavours in life, you will certainly gain rich experience which will stand you in good stead. Some of you have to face the vicissitudes, adventures and unforeseen hardships in life. Life will not be interesting unless one faces such challenges with courage, determination and fortitude. You should welcome such opportunities as a test of your own ability and courage to face such situations. As the saying goes, "A smooth sea will never make a skilful mariner." Uninterrupted prosperity and plenty will not sharpen the wisdom, nor teach one the art of life. The greatest affliction that one would have in life is not to have been afflicted at all. I have often felt that the most unfortunate person in the society is one whom adversity neglects, for he had no chance to prove himself. There is a saying that a wise man builds castles with the bricks that the enemies throw at him. Every adverse situation in life could be used to learn something and to use that experience to march forward.

There are two other important qualities which every individual must acquire by self effort. One is modesty and the other is maturity. Shakespeare once said, "Every braggart will be found an Ass." Lord Bacon remarked: "The less you speak of your greatness, the more I think of it. The greatest boasters are the smallest workers. The ego in ones-self arises out of a certain feeling that he has achieved something which others have not.

While studying in the schools and colleges, we should emphasize the need for not only specialising in one particular subject, but also gaining knowledge and understanding of other disciplines, particularly in the fields of Fine Arts, Music, dance and drama. These are areas which add to the cultural dimension of the individual. Albert Einstein once said, "Man must have a sense of the beautiful and morally good; otherwise he will resemble more a well-trained dog than a human-being." From a very young age, the student should cultivate one of the Fine Arts suitable to his taste and liking. We have known many great scientists, scholars and savants who have an appreciation of art forms, such as music, painting etc. Albert Einstein himself was a great violin player.

One of the important dimensions which is sadly missing in our educational system, is the appreciation of the cultural heritage of the country. Indeed, our country has a long history and a rich tradition of knowledge. We have inherited this, but we have not been able to appreciate and preserve this cultural heritage, except that which has remained in sculpture; paintings and in the classical writings. The modern student has a colossal ignorance of our cultural heritage. India was also foremost in its contributions to the Philosophy. As the world is getting more and more materialistic in its outlook, Saints and Philosophers like Vivekananda, Aurobindo and others have spread the message of Indian spiritual heritage to all over the world. You must try to understand this rich spiritual heritage handed over from generation to generation and try to preserve and enrich it for the benefit of posterity.

Universities today should not be merely seats of learning but also laboratories for character building. Character has to be inculcated from infancy by the parents in the homes and by the teachers in the schools and colleges. Education does not mean teaching people what they do not know. It also means teaching them to behave as members of a family, of a community, of a nation and the world at large. It should also teach them to guard against the evils in our everyday life. In order to avoid all the temptations which one comes across in the voyage of life, we have to tell them to draw strength from such forgotten qualities as simplicity, humility, contemplation and prayer. Love is true religion in action and is the basis for the unity of all religions of the world. Let me quote a well-known verse which embodies this idea

"The night has a thousand eyes
The day but one,

Yet the light of the whole world dies
With the dying Sun.

The mind has a thousand eyes
And the heart but one,

Yet the light of whole life dies
When its love is done"

(Excerpts from the convocation address delivered by Prof. B. Ramachandra Rao, Vice-Chairman, UGC, at the Sri Venkateswara University, Tirupati)

Personal

1. **Prof. G.S. Marwaha, Director, Indian School of Mines, Dhanbad, has been elected President of the Association of Indian Universities for the year 1981-82**
2. **Dr D.S. Kothari, former Chairman of University Grants Commission, has been appointed Chancellor of the Jawaharlal Nehru University, New Delhi.**
3. **Shri Prabir Kumar Sircar has been appointed Registrar of the University of Kalyani.**

CAMPUS NEWS

Orientation course on internal assessment for college and university teachers

A three-day Orientation Course in the Methods and Procedures of Internal Assessment, jointly sponsored by the University of Jammu and the National Council of Educational Research & Training, New Delhi was organised from 5th to 7th January 1981 at the University Campus. As many as 45 participants representing the affiliated colleges and the teaching departments of the University participated. The focus of discussion was on the following topics :

(1) Components of internal assessment : tools and techniques;

(2) Modus operandi of designed procedures;

(3) Should internal assessment and external assessment be combined?

Professor Satya Bhushan, Vice-Chancellor, University of Jammu, in his inaugural address advocated the total assessment of a student rather than assessing his "information aspect" only. The total assessment, he said, means cognizance of all his academic achievements and personality accomplishments. For doing this comprehensive evaluation, he said, external examination alone cannot deliver the goods. The internal assessment must supplement the external evaluation with a view to having periodical evidence to judge the achievements and failures of the student, to motivate the teachers and students to improve their efficiency as well as to judge those abilities and skills which cannot be assessed through external examinations. He was emphatic that since the present examination has become tension-generation-process, internal assessment culture has to be created as to release the tensions and infuse confidence among the students. For this two pre-conditions are imperative. One is that private tuitions must be banned because the culture of private tuition and internal assessment cannot go together and secondly the internal assessment culture requires that the teachers should have more interaction with the students.

Earlier Shri K. K. Gupta, Director Colleges Development, welcomed the participants and explained to them as to how the semester system is on its rails in the University of Jammu as a result of restructuring of the courses, encouraging interdisciplinary studies and involving the students and the faculty in academic pursuits. He spelt out the strides taken in this direction in the form of seminars, extension lectures and appreciation courses for the orientation and conscientiation of the college teachers for a meaningful switch-over to the new pattern.

Dr. R. G. Misra, Head, Department of Measurement and Evaluation, NCERT highlighted the role, importance and the superiority of internal assessment over the external examination which was limited in scope and direction. He exhorted the participants to have critical look at the prevailing system as well as at the alternatives to it in order to evolve an educationally sound, reliable and valid system of evaluation in the best interests of the student population.

Professor V. R. Taneja, the Director of the Course, emphasised that educational innovations stand and fall on the skill with which they are conceived, implemented, maintained and adapted. Of all the processes of education-teaching, learning and evaluation—the last is the most sensitive point. More than 90% upsurge in the students is due to their lack of credibility in the system of examination. On the spectrum of evaluation internal assessment can be a bonanza, provided the ingenuity of the teacher has designed the tools and techniques, which are realistic, objective and motivating to the students.

Three-days meaningful discussions and deliberations culminated into the averment that till the time the ideal, "those who teach should evaluate" becomes realisable, internal continuous assessment must supplement and external evaluation in order to mitigate the unreliability of the ratings done in external evaluation as well as to cover the inability of external evaluation for measuring the personality accomplishments. The complementarity of internal assessment was increasingly recognized because of the following fundamental inherent principles :

(1) Internal assessment emphasises the applicational aspects of the knowledge.

(2) Instead of snap study done by the students at the fag end of the session, continuous internal assessment ensures even distribution of work-load throughout the academic session.

(3) Internal assessment enables us to have periodical evidence to judge the achievements and failures of students.

(4) Teacher comes to know what topics he has taught effectively and what he has not.

(5) The student comes to know what he has learnt successfully and what he has not.

(6) It is motivating force for the teachers and the students to improve their efficiency as well as their interaction.

(7) Students are motivated towards the most valid dimensions of learning.

(8) The reliability and the validity is of a high degree in internal assessment as compared to the external assessment, provided the internal assessment is planned and executed judiciously.

Prior to deliberating over different components of internal assessment, it was unanimously conceded that genuine assessment cannot be accurately done unless it is known what is to be assessed. For this purpose, a precise formulation of the objectives of educational programme is necessary in terms of course content and also in terms of qualities and skills that a student is expected to develop on the completion of the course. When the objectives are clear the appropriate tool/component of assessing the desired objective can be identified. Although the opinions were divergent and sharply divided, some consensus was arrived at the following probable components of internal assessment.

(1) *Home Assignments* : Assignment, which is not properly designed, loses its educational value. It measures knowledge if the student has written answer on his own. If he has simply copied the answer from books it does not measure knowledge even. To improve the assignment, problem-oriented assignments should be given. It should be thoroughly commented upon and the student may even be asked to re-write.

(2) *Tests* : The participants favoured objective type tests which are easy to administer, easy to score and are reliable and valid. They, however, felt that till the teachers are thoroughly-oriented in the skill of designing the multiple choice items, short-answer type questions be set.

(3) *Tutorials/Seminars* : The rich potentials of tutorials/seminars cannot be over-emphasised. In the tutorial 3 to 4 students come prepared with written papers on a topic selected by them or suggested by the teacher and present their point of view to the group/class. The questions and interpolations follow and the teacher intervenes when he has to augment the material or to clarify the confused understandings or to remove the wrong misconceived and exaggerated notions. The individual to individual, the individual to group and the group to group interaction is perfect and conducive for the complete understanding of the area of knowledge thus focussed.

Similarly, seminars where 3 to 4 related problems are initiated and tackled by different experts evoke meaningful reactions of the persons, who are knowledgeable and also those who have superficial or peripheral knowledge. The motivational advantage of such an exercise is very high.

(4) *Preceptorial* : Pioneered by Woodrow Wilson in the Princeton University, the preceptorial Conference is catching the imagination of the academics. The information accumulated by the student from his reading and the class lectures is taken as a basis for "the free exchange of ideas" under the guidance of a preceptor who provides stimulation and opportunity for independent thought. The faculty member is present neither to lecture nor test the student's memory nor his ability merely to marshal the facts learned the night before and forgotten the next day. On the contrary through open discussion in which all are invited to join, the preceptor seeks to encourage each member of the group not only to grasp the subject, but also to evaluate it and its implications in terms of his own critical capacity and experience.

(5) *Viva Voce* : The Viva Voce provides an excellent opportunity for the evaluators to know precisely what an examinee knows. In this there is absolutely no scope for dodging the examiner's line of enquiry, as is sometimes possible in written examination. Besides testing the validity of evidence obtained through other modes of assessment, it is a valuable means to know how quickly and how well a student can give a logical and coordinated response to a question or display how effectively he can defend his answer or argue a case.

(6) *Weightage for Attendance* : In order to ensure regularity and seriousness, the participants underlined the vital importance of giving weightage to lecture-attendance, provided the scale of marks is rationalised.

Additionally, it was accepted that since there is no ceiling to human understanding, reflection and creativity, and a wide range of abilities are to be measured, there should be a variety and flexibility in the measurement and evaluation. Uniformity is not a virtue in education. In order to make internal assessment an integral part of the teaching-learning process, the teacher should utilize variety of procedures and tools for the assessment of the course content as also the abilities and qualities which he considers significant for the development of which he makes deliberate efforts during the course work. He should also utilise this opportunity for advising the students as to how they can improve their performance. It will, therefore, be desirable if every educational institution is given the elasticity of determining their own tools and techniques provided they do not have radical divergence from their compeers.

In order to ensure uniformity of students internal assessment marks received from every semester/year from various institutions and departments they may be subjected to scientific scrutiny by the University and course-wise range means and standard deviations in internal assessment for each college and department may be circulated to all the departments and colleges along with the corresponding means and standard deviations in the external examination. These may also be discussed in a conference of the Principals, Heads of the Departments and Deans. Reasons may also be ascertained for any significant deviations, if any, from the expected pattern and corrective action taken so that such unexpected variation get minimised in subsequent assessments.

Realizing the importance of internal assessment marks for the future career of the students it is necessary that this should be as unbiased as possible and should be close to the true achievement level of the student. In order to achieve this objective one important step that the University should take is the organisation of orientation programmes for teachers in the development and use of evaluation tools and techniques including the skill to set good questions of various forms testing different objectives.

It was suggested that necessary action be taken to develop question banks in different subjects. The sources to be tapped for this may be the already published material including book series to Association of Indian Universities, questions prepared by teachers, and old question papers not only of the Jammu University but other universities as well. The material thus collected be got vetted by the subject experts, be published and made available to the teachers concerned. It will be ideal if sample answers to a number of questions are also supplied to the students for their guidance.

In respect of combining the internal and external, the opinions were radically divergent. The following thinkings, however, are provided to the participants to rummage at will:

(a) There is no need of scaling if the difference between the external and internal assessment is reasonable.

(b) The marks in external and internal assessment should be converted to a common scale before they are added.

(c) Means and Standard Deviations be calculated and then scaling be done.

(d) The cumulative frequency graphs be drawn for external assessment and the internal assessment marks and draw a horizontal line across two graphs.

(e) The students may be ranked and then the internal and external marks be adjusted according to the rank order.

(f) A link or bridge test of objective type items be given and then the external and internal marks be compromised.

With all sincerity and commitment the teachers vociferously voiced the feelings that more trust be placed on the teachers by the authorities and the students, students representatives be involved in the decision making processes, periodic dialogues between the teachers and authorities be held to sort out problems, more academic autonomy be given to the teachers and direct inter-action of the students and teachers be encouraged when matters get complicated and controversial.

Sixth plan thrust on higher education

Union Planning Minister Shri N. D. Tiwari said in Madras that the main thrust in the Sixth Plan would be to coordinate the widespread facilities of higher education and maximise their utilisation. He was the chief guest in the sixth annual day celebrations of a women's college. He said the importance of education to development had been realised and concerted efforts were envisaged to forge beneficial links among education, employment and economic development. A committee of experts which had gone into this aspect, had felt that it was necessary the programmes were related to manpower profiles, existing and needed in the development and occupational areas and sectors and provide for adequate levels of pre-employment knowledge and skills as also for continuing education for those who were already employed.

Mr Tiwari said that the education must in fact, respond to the important aspect of human resources development as one of the major purposes of education was to prepare the students for a gainful working life, with a capability for learning to match new job opportunities. The deeper reasons for unemployment among the educated to some extent the mismatch between education and employment were due to the kind of education which the students got in traditional courses. The higher education required restructuring of undergraduate courses to make them purposeful and also terminal for those who would seek employment, provision for need-based vocational courses leading to diplomas rather than an academic degree.

Mr Tiwari stressed the need for promotion at post-graduate level research on practical problems or local and regional relevance as well as on fundamental research. The minimum objective of such programmes, he said, would be to make the first degree course more relevant and responsive to the development needs of the community and link education with work or field or practical experience and productivity by introducing students to relevant application areas of the subjects of their study. This, he said, would have the advantage of greater sensitisation of the academic community in the problems of poverty, illiteracy and environmental degradation.

Mr Tiwari said the experts' committee was now preparing the necessary guidelines which would be considered for implementation in the Sixth Plan by the universities. It was expected the district-level employment generation councils and district development centres envisaged in the Sixth Plan would provide a suitable forum to channelise the requirements of the minimum needs programme towards the capabilities and facilities of the universities and higher education system.

Referring to the problems of women, working for family's livelihood besides looking after the family. Mr Tiwari said the three task forces had been set up to prepare projects and make recommendations with the help of research organisations to help the women solve some of these problems.

Medal replica for BHU

Prof. Abdus Salam, noble laureate from Pakistan, presented a replica of his gold medal to Dr Hari Narain, Vice-Chancellor of Banaras Hindu University in New Delhi. The BHU had earlier conferred on him the honorary degree of Doctorate of Science but Prof. Salam was unable to receive it in person. Presenting a medal to Dr. Hari Narain, Prof. Salam said the replica was made especially by the Pakistan Government for presentation to the university.

Bengal to have open varsity

West Bengal has decided to try out the idea of setting up a novel university—named "open university"—admission to which will not require any academic qualification. There will be no restriction on admission whatsoever. It will be open to those who have never had any schooling. Admissions will be made on first-come-first-served basis. Instructions will be mainly through correspondence — but there will be opportunities for tutorial guidance. On two days in the week, students will be able to meet part-time teachers for getting clarifications. The time span for graduation will be longer than of regular universities—four years for a "pass course" and one year more for honours graduation. The first year will be devoted to "grounding" the student in subjects of his choice.

The West Bengal Education Minister, Mr Sambhu Ghosh, said that the "open university"—which in initial stages, would be affiliated to Calcutta University—would be launched from the coming academic year. Gradually it would be developed into a full-fledged university.

Reorientation of exam system suggested

A strong plea for overhauling the examination system was made at a six-day workshop organised by the National Council of Educational Research and Training at Government College of Education, Jullundur. Dr A. S. Dhaliwal, Controller of Examination, Guru Nanak Dev University, Amritsar, who inaugurated the workshop, said the examination questions should cover the whole area of knowledge to be tested. Dr D. R. Vij, Director of the workshop, said the examination should not only assess but encourage and guide. The examination must form an integral part of the teaching-learning process. Dr Pritam Singh of the N.C.E.R.T. said the workshop aimed, at producing question banks for secondary and higher secondary classes in biology and mathematics.

About 25 lecturers from Delhi, Punjab, Himachal, Rajasthan and Uttar Pradesh attended the workshop.

Varsity honours Bhagavantam

Five eminent men were conferred honorary doctorate degrees by the Sri Venkateswara University at its 24th annual convocation held recently at Tirupati. The honorary degree of Doctor of Science was conferred on Dr. S. Bhagavantam, former adviser to the Defence Ministry and Mr T. R. Doss, former Vice-Chancellor of Jawaharlal Nehru Technological University, Hyderabad. The honorary degree of Doctor of Letters was conferred on Dr Dasarathi, Poet-Laureate, Andhra Pradesh and Dr M. Balamurali Krishna, Carnatic vocalist.

The honorary degree of Doctor of Laws was conferred on Dr O. Pulla Reddy, former Vice-Chancellor of the Andhra Pradesh Agricultural University.

UP accepts 3-year degree course

The Uttar Pradesh Government has adopted, in principle the recommendations of the Vice-Chancellors' conference held in Lucknow to introduce three-year bachelor's degree course in all the universities in a phased manner. However, due to financial constraints the decision will not be effective from 1981-82. A committee comprising the Vice-Chancellors of Gorakhpur University, Lucknow University and Meerut University has been constituted to go into the details of the proposal. The government would however have no objection if any university adopted this scheme during 1981-82 session. Only Allahabad University was in a position to adopt 3-year degree course in 1981-82. The University Grants Commission, it is learnt, has given its consent. The postgraduate course shall be of two years duration in addition to the 3-year graduation course. This decision has been taken to check the large number of students going in for post-graduation.

Study of deltas

The Director, Research and Development Institute of Petroleum Exploration of the Oil and Natural Gas Commission has called for the need to study the modern deltas of India to draw up a research scheme. The Commission has also engaged Indian scientists in US to study deltas in Bengal basin and explore the possible presence of oil in this region. Besides, scientists at the ONGC felt the need for establishing an institute of regional status for delta studies to help locate hydrocarbons and thereby help in meeting the energy crisis.

Osmania conducts phonetics workshop

A four-week workshop-cum-seminar on methods of research in phonetics with special reference to Indian languages was organised by the Department of Linguistics of the Osmania University at Hyderabad. Prof. Peter Ladegoged of the University of California, USA, was the coordinator of the workshop. The course designed for advanced students, research scholars and teachers working in the departments of Linguistics and Languages of Indian universities and research and training institutes was attended by 70 scholars from all over the country.

Pondicherry university under consideration

Union Education Minister, Shri S.B. Chavan, said that the proposal for setting up a central university in the Union Territory of Pondicherry is under examination and a decision will be taken shortly.

Exhibition of Indian books and postage stamps held in Ruhr University Bochum

Embassy of India, Bonn (FRG) organised an Exhibition of Indian Books and Postage Stamps in cooperation with the Ruhr University Bochum. The Exhibition was opened by Mr Hans Schwier, Minister for Science and Research of the German State of North Rhine Westphalia in the University Library. Prof. Dr Knut Ipsen, Rector (Vice Chancellor) of the University of Bochum welcomed the invited guests at the opening ceremony and explained the partnership programme between this University and Osmania University, Hyderabad. Dr A.M. Khusro, Ambassador of India also spoke on this occasion.

The books numbering about 850 displayed in this Exhibition covered various subjects including humanities, natural sciences, engineering and technology, medicine, agriculture, Indian art and culture, religion and indology, philosophy, yoga and books on recent events, short stories, novels etc.

Similarly the Postage Stamps displayed at the Exhibition were supplied by the Department of Posts & Telegraphs and covered wide range of series like wild life, Indian classical dances, Indian locomotives, Indian flowers, Modern Indian paintings, Indian museums, conquest of Kanchanjunga, Olympic series, postage stamps on personalities like Gandhi, Einstein, Max Mueller, Beethoven etc.

Deutsch Indische Gesellschaft (Indo-German Society) under the leadership of Prof. Dr Mayer-Dohm, former Rector of Bochum University organised an Indian cultural week in cooperation with the University authorities. Apart from this Exhibition which remained opened for full one week, cultural programmes were also organised in the form of presenting folk dances from Punjab (Bhangra). Indian film shows and sitar recital by Shri Salil Shankar, an eminent sitar player. University authorities also served Indian food in the University cafetaria during this week.

The Aachen/Bochum—Osmania Cooperation Scheme (ABOCS) which was initiated in July 1967 as a result of an agreement between the representatives of Osmania University and of the Institute of Development Research and Development Policy of the Ruhr University Bochum and the Research Institute for international Techno-Economic Cooperation, Technical University, Aachen. This cooperation continued for several years under the guidance of Prof. Dr Meyer-Dohm. Subsequently, this cooperation continued in the form of an inter-departmental links between the Ruhr University, Bochum and Osmania University, Hyderabad under the Indo-FRG Cultural Exchange Programme. Lot of useful research and exchange of information has taken place because of these inter-departmental links between the Universities of India and Germany.

Apart from this, Indian studies have also found great interest among the Professors and students at the University which ultimately has resulted into setting up a Department of Indology.

News from Agril. Varsities

Conservation of flora, fauna essential for farm development

India's agricultural future would depend upon its ability to conserve and enrich the basic life support systems like soil and water, flora and fauna and the atmosphere. Dr. M.S. Swaminathan, Member of the Planning Commission, while delivering the fourth Homi Bhabha Memorial Lecture on "Solar energy and our agricultural future", organised by the Institute of Engineers at Bombay said the problem of increasing carbon dioxide concentration in the atmosphere could be faced with confidence only through "a real green revolution where every available patch of land is covered with green plants." He said if India could take full advantage of the current photosynthesis, it might be able to face successfully the problem arising from both the depletion and cost escalation of fossil fuels, which were the products of past photosynthesis. He gave details of what he termed as three major pathways" through which solar energy could be harnessed for agricultural purposes. They included photosynthetic pathway through extensive cultivation of green plants, photovoltaic applications and photothermal applications. With these both at the production and post-harvest phases of agriculture, direct and indirect applications of solar energy would help the country to take advantage of the vast untapped production reservoir available even at current levels of technology. The harnessing of solar energy for meeting the domestic energy requirements in the rural areas was exceedingly urgent since otherwise the indiscriminate falling of trees would fuel the process of desertification and thereby lead to destruction of the biological potential of the land.

He said India needed such a programme to help it to convert the vision of photosynthetic model of economic growth into a reality. Unlike the atomic energy model of growth, which required a small group of highly competent and dedicated scientists and technologists who could implement programmes in a time bound framework, the photosynthetic model required action and participation on the part of every citizen. He called for the establishment of 'genetic gardens' at suitable locations consisting of collections of genotypes of different essential oil yielding plants. He said efforts should be made in India which has a rich variety of both forest-based and crop-based essential oil resources to identify those perfume yielding crops which can be economically grown either as pure crops or inter-crops in different crop rotations. He said the establishment of such genetic gardens acquired great importance, as available evidence suggested that considerable erosion of valuable genetic material had taken place due to indiscriminate deforestation.

Haryana Agriculture Minister lays the foundation stone of international student hostel at HAU

Mr. Shamsher Singh Surjewala, Agriculture Minister for Haryana, lauded the research work of H.A.U. scientists and said that it could now be well compared to the researches being conducted in many of the advanced countries of the world. While speaking at the foundation stone laying ceremony of the H.A.U. International Students Hotel, Mr. Surjewala said that he had seen agriculture farms in 5-6 countries and could say with confidence that the H.A.U. farm with its luxuriant growth could well be compared with the crops in the developed countries. He advised the scientists to bridge the gap between the poor farmers and the elite farmers and make further efforts to carry their technology to the poorest of the farmers in the remotest of the villages.

The 3-storied hostel sprawling over an area of 22778 sft. will be constructed at a cost of Rs 20.83 lakhs. Dr. P.S. Lamba, Vice-Chancellor, while welcoming the minister disclosed that at present there are about 60 students from 11 countries in different disciplines of the University. The new hostel would have 72 cubicles.

Dr. K.S. Dhindsa, Director, Students Welfare, in his report about the directorate, disclosed that it operates a budget of Rs 22 Lakhs per annum which include expenditure on medical facilities too. He said that a unique feature of H.A.U. is that cultural activities and sports form an integral part of the undergraduate programme. Earlier, the Minister visited the University farm and complimented Dr. Maharaj Singh, Director of Research for the pioneer work H.A.U. is doing in the sphere of seed technology. He also visited the dryland section of the farm.

Mr. Mosses O. Obassi, President of the Foreign Students Association, said that H.A.U. is the first agricultural university in the country to have an international students hostel.

ICAR summer schools

The Indian Council of Agricultural Research has decided to hold twentyone Summer Institutes in the field of agriculture sciences during coming vacation of 1981 for the benefit of teachers, research workers and extension workers, particularly the subject matter specialists. The main objective of this inservice training course would be to communicate the latest technological advances in the subject and provide the necessary orientation to teachers and research workers of agriculture/agricultural engineering/animal science/home science/fisheries so that they are able to relate the teaching of their subject to the problems in their respective subject. Indian Council of Agricultural Research have undertaken to meet the expenses for organisation of each Summer Institute. All the details relating to the name, address of the Director of Summer Institute, location of centre and duration period can be ascertained from all the agricultural universities, colleges and the research institutes of the Indian Council of Agricultural Research.

A popular course in vegetable growing

Haryana Agricultural University is conducting a 10-month training course in vegetable growing for farmers of Haryana. The first group of 10 farmers recently completed the course. Dr P.S. Lamba, Vice-Chancellor of the University has said that the places in and around Delhi have a good market for vegetables and farmers taking to vegetable cultivation can make it a source of good income. In view of the perishable nature of most of the vegetables, the farmers are taught preservation techniques. Post harvest handling—storage, marketing, drying and canning—forms an important part of the course. The farmers are trained in preparing pickles, sauces, jams and marmalades.

Dr R.P. Singh, Associate Director of Training, Haryana Agricultural University, said the farmer gets a good price for his produce only if he understands the flexibility of the market. This is one reason why educated young farmers are given preference in admission to the course. The trainees spend about 20 days in a month working on the plots earmarked for growing vegetables. The course is spread over 10 months to give the farmers a complete understanding of the various aspects of vegetable growing throughout the year. The farmers are encouraged to grow uncommon varieties of vegetables like mushroom, celery, asparagus and lettuce. These vegetables will be becoming popular in all over the country.

After the training a farmer can earn about Rs 4,000 per acre in a year. The farmer needs only about Rs 2,500 per acre for the initial capital investment. The University has approached nationalised banks for loans for the farmers desirous of setting up vegetable farmers. It maintains a regular contact with the trainees to aquaint them with the new developments. University experts visit their farms periodically.

Better varieties of crops developed by ICAR

Scientists at the Indian Council of Agricultural Research (ICAR) have achieved a breakthrough by developing improved varieties of oilseeds, pulses and wheat having higher yields, even in dryland farming. Dr Rajat De, Head of the Agronomy Deptt said in New Delhi, that the future crop rotation pattern in the north-western parts of the country would be wheat—rice in the areas which are irrigated and arhar or red gram in areas with limited irrigation. Lands which have no irrigation facilities, crops such as rapeseed, mustard and safflower during the rabi season and in the kharif season and short-duration pulses offer the best possibility of increasing production and income.

Dr De said nearly 70 per cent of the total cropped area of 173 million hectares in the country depended on natural rainfall as a source of irrigation. Agricultural scientists believe that with the application of scientific techniques on irrigated land, productivity could be higher than what has been achieved in recent years. The most important step towards increasing the productivity of non-irrigated lands, however, was the correct choice of crops. Agronomists have shown that crops like rapseed—mustard and safflower during the kharif season give higher returns and show greater stability of production under these conditions.

An increase in production of pulses and oilseeds under conditions of limited moisture has been made possible by IARI scientists with the development of short-duration varieties of pulses such as mung and oilseed crops like repeseed and mustard. For achieving higher production, farmers in non-irrigated areas should make use of the last monsoon showers for planting the rabi crop of mustard after harvesting mung, urad or cowpea.

IARI scientists have shown that farmers need not be concerned about the loss of moisture because of which they sow wheat in October. The scientists suggest that the new high-yielding varieties of wheat can be planted in the dry lands even in November provided the seed is placed deep in the moist zone IARI has constructed simple hand-drawn and bullock-drawn ploughs for this purpose.

World Bank team visits Ludhiana

Sir John Crawford, Adviser to the President of the World Bank, accompanied by a team of eleven officers, visited the Punjab Agricultural University and discussed the progress of the three projects relating to development of cotton, making sufficient good quality seeds available to the farmers and development of 'kandi' areas in Hoshiarpur and Ropar districts of Punjab. The Director of Research, PAU, Dr S.S. Johl, said that by evolving varieties like F-414 and LH-372 in American Cotton and LD-133 in indigenous cotton, the university has met the major need of the cotton farmers. Its research station at Bhatinda is being strengthened for more intensified research. Regarding seed, the main difficulty was about groundnut, gram and cottonseed. For other crops also, it could produce more seed if larger farm area was made available to it. In kandi areas the university was conducting studies on small dams and reservoirs so that every drop of rain water falling in the area could be utilised.

Sir John also met some farmers in the villages around Ludhiana.

HAU organises courses for Canadian students

The Haryana Agricultural University will organise a three month course in agriculture for Canadian young men and women under the Canadian World Youth Programme. Dr P.S. Lamba, Vice-Chancellor of the University made this announcement in Hissar. He said the training programme has been especially designed to meet the needs of the Canadian students. Eight Canadians including four girls would attend the course along with eight Indian students. The students will undergo extensive training in sowing operation, livestock farming and transfer of agricultural technology. The girls also will be trained in toy making. The participants will also be given training in yogic exercises.

Chhotu Ram chair at HAU

The Academic Council of Haryana Agricultural University has decided to institute Sir Chhotu Ram Chair in Agricultural Economics to study and promote his philosophy pertaining to rural development. The post will carry a fixed salary of Rs 3000 per month in addition to the usual allowances.

News from UGC

Varsities empowered to increase fellowships

The University Grants Commission has decentralised the procedure for increasing the value of junior research fellowships to avoid delays. Universities have been authorised to increase the value of these fellowships to Rs. 700 per month each on completion of two years of research by the holder without any reference to the Commission. The universities can now themselves get the research report evaluated by outside experts and take a decision on the enhancement of the fellowship through a three-member committee at their end.

A circular letter sent by the Commission to the universities has listed the guidelines to cover the various categories of the award. One of these provides that a junior research fellow who has obtained his M.Phil. degree and continues to work for his Ph.D. on an approved topic, will be entitled to the increased fellowship of Rs. 700 per month without any assessment or evaluation.

The Commission has urged the universities to decide about the enhancement within three months of the date on which it becomes due.

Information cells in universities

The University Grants Commission has urged universities to set up Information Cells so that the maximum number of students and teachers can benefit from the Commission's schemes.

The Commission has found that the circulars and guidelines that are sent by the Commission to universities do not reach students and teachers in time. In a circular letter it has, therefore, advised them to develop an adequate information system in the interest of students and teachers in both universities and colleges.

As a first step, the Commission has suggested that the Information Cells should be set up in reading rooms in universities and colleges to disseminate information about the various UGC schemes. These Cells should also display UGC publications, pamphlets and circulars and make available to students application forms for the various UGC schemes.

One lakh for visiting professors

The University Grants Commission has sanctioned Rs one lakh to the Rabindra Bharati University for implementation of the scheme of visiting professors or visiting fellows during the period 1980-81 and 1981-82 in the various fields of performing arts.

Science & Technology

Dhawan pleads for science movement

Prof. Satish Dhawan, Chairman of the Indian Space Research Organisation stressed the need to create greater awareness among the people about science. He said that there was no science movement in the country at present. He was inaugurating the three-day national seminar on "science, technology and development in India" organised by the All India Place and Solidarity Organisation at Bangalore.

Prof. Dhawan said scientists should realise that there could be no "science without people." At present there was a dichotomy between society and science. While society tended to be conservative to the point of becoming reactionary, science was always ready for change.

In spite of this the problems of science were intimately concerned with those of society. For narrowing this dichotomy a scientific movement was essential. The need for setting up nuclear power plants, for example, involved the vital question of whether "we are prepared to take our countrymen along with it."

Japanese science delegation to visit India

A high-level 12-member Japanese science and technology delegation will visit India to study scientific developments and to discuss the possibilities of cooperation between the two countries. The delegation will be led by Mr. Kohei Suzue, a member of the Council for Science and Technology, an advisory body to the Prime Minister. It is the apex body for science and technology in Japan and recommends the policies to be followed.

The delegation will visit New Delhi, Bombay and Bangalore. In Delhi, the members will have discussions with officials of the National Committee of Science and Technology and the Council of Scientific and Industrial Research (CSIR) and visit the National Physical Laboratory and the Indian Meteorological Department. In Bombay the delegation will visit the Tata Institute of Fundamental Research and proceed to Bangalore, where it will spend a few days visiting the National Aeronautical Laboratory, the Indian Institute of Science and the Indian Space Research Organisation (ISRO).

BITS makes headway in solar energy research

Solar enery conversion is a priority area of research at BITS, Pilani. It is mainly aimed at rural applications and has benefited by the interaction of the Institute with the nearby villages through the Institute's Practice School and NSS programmes.

A recent experiment on space heating of a village home using solar energy during winter has been quite successful. A model room has been constructed in such a way that its south facing wall contains blackened drums full of water. The drums are heated by exposure to the sun during the day and radiate heat to the interior of the room during the night. As a result the room remains comfortably warm in winter nights. A reverse operation should be able to cool the room during summer days. A prototype room is going to be constructed soon. It is hoped that this will provide a simple, cheap and reasonably efficient system for air conditioning of rural houses.

Using the same principle a solar water heater has been designed which mainly consists of an ordinary discarded coal tar drum. Water is contained in the drum which is blackened, insulated by using rice husk and is kept in a wooden box with a glass cover. The whole device costs Rs 200-300 and gives water at temperature 40°C-50°C in winters.

Other devices which have been designed are non-tracking concentrators, solar distillation system and solar pump. In addition some useful methods have been developed for testing of solar cells.

This work is being carried out by an interdisciplinary team which includes Sri H.S. Moondra, Prof. B.K. Raghunath, Dr S. Kumar, Dr (Mrs) A. Gupta, Sri S.C. Mittal, Dr R.K. Saxena and Dr V.K. Tewary.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Hosur, Nalini Timmanna. A study of some psychological characteristics of students with rural and urban background. Karnatak University.

2. Ravi Chandra, Kanukolanu. Psychological and managerial factors influencing the success of small industrial enterprises in the Hyderabad Urban Development Area. Osmania University.

3. Singh, A.K. To study the incidence of creativity among the socio-economically disadvantaged children with special reference to the Central U.P. Rohilkhand University.

Sociology

1. Banerjee, S.D. Rural leadership and rural development: A study in Jalpaiguri District, North Bengal 1973-1975. North Bengal University.

2. Bhoite, Uttam Bajirao. A study of intellectual role : Activities of the college teachers in Marathwada. Marathwada University.

3. Chakrabarti, Hillol Kr. A socio-economic study of the Meches in a selected area of North Bengal. North Bengal University.

4. Chattopadhyay, Samar Kanti. Socio-political institutions of Jainta Hills. Gauhati University.

5. Jafri, S.S.A. Intra-city variations in public utility services/facilities in metropolitan Delhi. Jawaharlal Nehru University.

6. Mathew, George. Secularisation and communalisation : Contradictation and change in Kerala, 1890-1980. Jawaharlal Nehru University.

7. Singh, O.P. Social planning in a rural sector : A micro study of the development blocks of Bareilly District, U.P. Rohilkhand University.

8. Yadav, Krishan Kumar. Christians in Meerut : A sociological study. Meerut University.

Political Science

1. Agrawal, Sheela. Community development administration in the tribal blocks in Narsinghpur District in Madhya Pradesh. University of Jabalpur.

2. Jain, Mahendra Kumar. Role of depressed classes in Indian National Movement, 1900-1947. Meerut University.

3. Kapur, Kiran. Quest for politics of consensus in Malaysia, 1969-1975. Jawaharlal Nehru University.

4. Mittal, Shiva Kumar. Sri Aurobindo's integral approach to political thought. Meerut University.

5. Muraleedharan, Usha. The S.N.D.P. Yogam and Kerala politics. University of Kerala.

6. Sharma, Avkash. Role of Young Communist League (YCL) in the development of the USSR. Meerut University.

7. Vashishtha, Piyush Chandra. A case study of Bharatiya Kranti Dal and its leaders. Meerut University.

Economics

1. Agarwala, Nirmal. Development of a dual economy. University of Calcutta.

2. Das, Prafulla Chandra. Trade union politics in Orissa. Utkal University.

3. Gopal, Kurada Rani. Economics of health and nutrition : Some aspects of growth and welfare in Andhra Pradesh 1961-62 to 1973-74. Andhra University.

4. Gupta, Meena. Performance of fertilizer industry : An inter sectoral analysis. University of Delhi.

5. Nana Buchi, K. Micro-planning and economic development in the district of Ganjam, Orissa. Berhampur University.

6. Raghavan, S. An appraisal of prospects for engineering goods export. Meerut University.

7. Ran Bir Singh. An analytical study of the behaviour of fertility, mortality and migration alongwith the factors responsible for those three demographic variables of which population is a function. Meerut University.

8. Sarin, Bishan Swarup. A study of supply and demand functions of important foodgrains in Uttar Pradesh. Meerut University.

9. Sarma, Raghunath Padhi. Investment pattern of public undertakings in Orissa, 1951-52 to 1968-69. Sambalpur University.

10. Sharma, Madan Pal. Uttar Pradesh kee krishi arthavyavastha mein Bhoomi Vikas Bank kee bhoomika. Meerut University.

11. Sharma, Ramesh Chandra. Development of economic overhead capital in Madhya Pradesh. Ravishankar University.

12. Surinder Jit Kaur. Woollen industry in Punjab, India. Meerut University.

Law

1. Chilad, Basavaraj Sadashivappa. Role of managements, trade unions, police and government in industrial protests. University of Saugar.

Public Administration

1. Bapuji, Madduri. The Girijan Cooperative Corporation : A study in tribal welfare administration. Andhra University.

2. Bhattacharyya, Asit Ranjan. Panchayati Raj in Tripura with special reference to Panisagar Community Development Area. Gauhati University.

Education

1. Bharatiya, Anil. Effectiveness of mathetics in mathematics in relation to certain student's characteristics. Meerut University.

2. Boel, W. An analysis of the Kerala Education Act of 1958 and the related rules and regulations. University of Kerala.

3. Deepak, Anju. Factors of content, context and person in academic satisfaction and student performance : A study of Bombay colleges. Jawaharlal Nehru University.

4. Exemmal, J. Construction of certain models for teaching school botany using environmental and ethnic resources and testing the efficacy of such models. University of Kerala.

5. Paikaray, G.S. A comparison of different types of feedback in microteaching upon teaching competence and attitude towards teaching of student teachers. Utkal University.

6. Saikia, Devika. Sociology of elementary education in Khasi and Jaintia Hills. Gauhati University.

7. Sengupta, Manjit. Intellective and non-intellective factors associated with engineering creativity. Meerut University.

Commerce

1. Alimul Haq. Marketing problems of agro-engineering industries in Uttar Pradesh with special reference to Meerut District. Meerut University.

2. Barooah, Hem Kanta. Prospects and problems of small scale industries in Lakhimpur District. Gauhati University.

3. Dube, Virendra Kumar. Madhyapradesh mein nagar nigamon ki vittiya vyavastha : Vishleshnatmak adhyayan. University of Jabalpur.

4. Gupta, Uttam Chand. Population density and patterns of trade and development : A cross-section study. Jawaharlal Nehru University.

5. Mohan Lal. Marketing of gur in Western Uttar Pradesh : A case study of Muzaffar Nagar Mandi. Meerut University.

6. Sharma, Ashok Kumar. Industrial development of Haryana. Meerut University.

7. Surya Prakash. Parliamentary control over Public enterprises in India. Meerut University.

Management

1. Singh, Brajendra Pratap. Problems of personnel management in public enterprises with special reference to Hindustan Steel Ltd. University of Rajasthan.

2. Tyagi, Mahendra Singh. Coal programming in petroleum and petrochemical system in India : An application in relation to certain specific decision areas. University of Delhi.

HUMANITIES

Philosophy

1. Deshpande, Balkrishna Yeshwant. The concept of logical necessity in modern classical philosophers. Nagpur University.

2. Kameshwar Rao, B. Advait Vedant mein vyakti ka swarup evam sthan. University of Jabalpur.

3. Nigam, Shobha. Adhyatam Ramayana : Ek darshnik adhyayan. Ravishankar University.

Linguistics

1. Gopinathan Nayar, B. Phonological reconstruction of South Dravidian Languages. University of Kerala.

2. Joseph, P.M. Prakrit loan words in Malayalam. University of Kerala.

3. Saraswathi Amma, R. Structure of standard Malayalam : A tagmemic analysis. University of Kerala.

Literature

English

1. Baral, Bhabani Sankar. William Golding : An archetypal analysis of his novels. Sambalpur University.

2. Kapur, Subhash Chand. Development and functioning of imagery in John Webster with special reference to the White Devil and the Duchess of Malfi. Meerut University.

3. Padma, Thippavajhala. Women characters in the novels of Rabindra Nath Tagore. Andhra University.

4. Ramakrishna Rao, Nabhi. Novels of Norman Mailer. Berhampur University.

5. Singh, Ajai. Rabindra Nath Tagore's imagery in relation to his basic ideas. Meerut University.

Sanskrit

1. Acharya, Nandishwar Prasad. Acharya Kshemendra ke auchityavad kee drishti se Bhavbhuti kee natya-kritiyon kee samiksha. Meerut University.

2. Agarwal, Santosh. Dhananjaya rachit Dwisandhan maha kavya ka alochanatmak adhyayan. Meerut University.

3. Basu, Swapna. A critical and comparative study of the theories of creation, dissolution and salvation in the Sankhya System of Philosophy. University of Calcutta.

4. Garg, Manorama. Sanskrit alankar shastra mein chamtkar-tatwa. Meerut University.

5. Meenambal, K.S. A study of Nagesa's commentary on the Mahabhashyapradipa of Kaiyata Navahnika. University of Kerala.

6. Purnima. Badim Singh : Sayadhadh Sidhi ka darshanik adhyayan. Rohilkhand University.

7. Taneja, Krishna. Madhya mein kavya-bimb. Meerut University.

8. Trivedi, Bhawani Shankar. Kalidas ke kavyon mein bhaugolik tatwa. Meerut University.

Pali

1. Misra, Gaurishankar. Buddhist elements in the work of Jayashankar Prasad. University of Calcutta.

Hindi

1. Agarwal, Ravindra Kumar. Brajbhasha ke ritikaleen aithihasik chrit kavya. Meerut University.

2. Arya, Chandra Prakash. Rashtriyata kee avadharana aur Pt. Shyam Narayan Pandeya ke kavya mein unkee abhivyakti. Rohilkhand University.

3. Ayub Khan. Bisvin shatabdi kee Hindi kavita kee darshnik chetana. *D. Litt.* Meerut University.

4. Baluja, Chandra Prabha. Kavi agyeya kee saundrya chetana. *D. Litt.* Meerut University.

5. Bhasin, Pushpa. Hindi natakon mein nari chitran : Bhartendu Yug se Prasad Yug tak. Meerut University.

6. Dhan Prakash. Hindi Ramkavya mein Kaikeyi ka chitran. Meerut University.

7. Diwan, I.N. Harvansh Rai Bachchan aur unka sahitya. Saurashtra University.

8. Gavendra Singh. Maithilisharan Gupt ke kavya ka nitiparak adhyayan. Meerut University.

9. Gupta, Nirmal. Dwivediyugeen kavita mein sanskritik chetna. University of Jammu.

10. Gupta, Vimla. Jasnath : Jasnathy sampradaya aur sahitya. University of Calcutta.

11. Hymavathi, G.V. A study of the national and cultural spirit in modern Hindi drama. University of Calicut.

12. Jagdish Chandra. Sanskrit natya kala ke pariprekshya mein Bhartendu kee natya kala ka ganavekshanatmak adhyayan. Meerut University.

13. Joseph, P.M. Love and beauty in the romantic poetry in Hindi and Malayalam. University of Cochin.

14. Khatic, Chhotelal. Prasad ka katha sahitya. University of Calcutta.

15. Lal, Avinash. Hindi upanyas mein swachhand prem bhavana. University of Delhi.

16. Madhuri Lata. Badayun Janpad ka Hindi sahitya mein yogdan. Rohilkhand University.

17. Mishra, Ram Lakhan. Swatantryottara Hindi kavita mein nirmanonmukhi bhavana. University of Calcutta.

18. Mohan Rao, Kolli. A comparative study of age conscious novelists : Acharya Chatursen and Viswanath Satyanarayana. Andhra University.

19. Pushpa Lata. Upendranath Ashka ke upanyason ka samajshastriya adhyayan. Meerut University.

20. Sathyanathan Nayar, K.P. A study of the development of Hindi as official language. University of Calicut.

21. Satish Chand. Swatantryottar Hindi upanyason mein sampradayik sambandh. University of Delhi.

22. Sharma, Chandra Dutt. Keshav ke kavya mein bimb-yojana. Meerut University.

23. Sharma, Keshav Ram. Madhyakaleen Hindi bhakti sahitya mein Hanumad bhakti parak sahitya ka alochanatmak adhyayan. Meerut University.

24. Sharma, Ramesh Chand. Saundrya shastriya kee drishti se Kalidas evam Prasad ke kavya ka tulnatmak adhyayan. Meerut University.

25. Sharma, Shyam Behari Lal. Pashchatya navyalochan aur samsamyik Hindi alochana. University of Delhi.

26. Sharma, Sushila. Hindi upanyas mein pratikatmak shilp vidhi : Prem Chand se ab tak. *D. Litt.* Meerut University.

27. Shrivastava, Madhubhashini. Uttar-chhayavadi kaviyon ka atam-pratyakshikaran : Narendra Sharma, Bachchan, Dinkar aur Achal ke vishesh sandarbh mein. Meerut University.

Urdu

1. Khan, Yousaf. A critical study of Ismat Chughtai as a fiction writer. Meerut University.

Bengali

1. Giri, Satyakumar. Saptadash Satabdir Manasa-Mangal Kavyadharay Kabi Jagajiban O Tara Kavya-mulyan. University of Calcutta.

Oriya

1. Satapathy, Prativa. Romanticism in modern Oriya poetry. Utkal University.

Marathi

1. Deshpande, Shirish Gopalrao. Kavi N.P. Deshpande : Ek adhyayan. Nagpur University.

Gujarati

1. Jani, B.S. Concept of the hero and the heroine in Gujarati novel. Saurashtra University.

2. Khira, B.G. Poetry of Rambhakti in medieval literature. Saurashtra University.

Persian

1. Nihal Chand. Abul Fazl's contributions to Persian Prose. University of Delhi.

Tamil

1. Ramaswami, N. Formal and informal Tamil. University of Kerala.

Malayalam

1. Mathew, T.V. Vrithamangari : A critical study. University of Kerala.

2. Unnithan, M. Radhakrishnan. Impact of Vaisnavism on Bhakti literature in Malayalam with special reference to Ezhuttaccan. University of Kerala.

Telugu

1. Vasundhara, G. Tradition as reflected in women's songs in Telugu folk literature. Osmania University.

Fine Arts

1. Jagdish Prasad. Shekhavati ke bhitti-chitra : Ek sanskritik evam kalatamak adhyayan. Meerut University.

2. Lal, Jag Roshan. Pahari kala parampara mein chitra upshelli kee utpatti aur vikas : Ek alochanatmak adhyayan. Meerut University.

Geography

1. Govind Singh. Geonomic study of tehsil Deoband, Saharanpur, U.P. Meerut University.

2. Mohanty, Surya Kanta. Hierarchy of market centres in lower Mahanadi Brahmani Basin : A study in spatial geography. Utkal University.

3. Sahariya, R.B. Social geography of Moradabad City. Rohilkhand University.

4. Singh, Hira Lal. Land utilisation in Koliwar Block, Bhojpur. Magadh University.

History

1. Gangwar, Ganga Vishnu. A history of Bareilly District 1801-1947 : A critical study of social, political, economic and cultural conditions. Rohilkhand University.

2. Gupta, Manju. Society and politics in Bengal, 1857-1885. University of Calcutta.

3. Katoch, Jeewan Kumari. Political evolution of the hill states between the rivers Sutlej and Yamuna, 1815-1857. Meerut University.

4. Krishna Murty, Y. Gopala. Pandit Govind Ballabh Pant and his role in Indian politics. Meerut University.

5. Panda, Sadhdu Charan. Naga cult in Orissa. Sambalpur University.

6. Sankaran Nair, V. Role of students in freedom movement with special reference to Madras Presidency. University of Kerala.

7. Soma Reddy, R. History of religious institutions in Andhra Desa from A.D. 1300 to 1600. Osmania University.

FORM IV

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(*Continued from page 150*)

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R.S. Singh
REGISTRAR

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from periodicals received in AIU Library during February, 1981

EDUCATIONAL PHILOSOPHY

Cameron, John. "Education, individuality and community : Education for self-reliance in Tanzania." *British Journal of Educational Studies* 28(2): June 80 : 100-11.
Jantsch, Erich. "Interdisciplinarity : Dreams and reality." *Prospects* 10(3); 1980 : 304-12.

EDUCATIONAL PSYCHOLOGY

Gupta, Arun Kumar. "Institutional climate and classroom teacher behaviour in relation to creativity." *ICSSR Research Abstracts Quarterly* 7(1-2); Jan-June 78 : 71-86.
Singh, Ram Pal. "Delinquency as a function of socio-emotional climate of the class." *ICSSR Research Abstracts Quarterly* 7(1-2); Jan-June 78 : 87-93.
Slavin, Robert E. "Co-operative learning." *Review of Educational Research* 50(2); Summer 80 : 315-42.

EDUCATIONAL SOCIOLOGY

Acton, T.A. "Educational criteria of success : Some problems in the work of Rutter, Maughan, Mortimore and Ouston." *Educational Research* 22(3); June 80 : 163-9.
Hargreaves, David, H. "A sociological critique of individualism in education." *British Journal of Educational Studies* 28(2); June 80 : 187-98.
Parry-Jones, William Ll. and Gay, Brenda M. "The anatomy of disruption : A preliminary consideration of interaction sequences within disruptive incidents." *Oxford Review of Education* 6(3); 1980 : 213-20.
Smith, Bruce L.R. "The brain drain re-emergent : Foreign medical graduates in American medical schools." *Minerva* 17(4); Winter 79 : 483-503.

EDUCATIONAL PLANNING

"DEVELOPMENT OF higher education in the sixth plan." *University News* 18(24); 15 Dec. 80 : 677-81.
Widmaier, Hans-Peter. "Educational policy and educational planning." *Education* 21; 1980 : 7-19.

EDUCATIONAL ADMINISTRATION

Azhicode, Sukumar. "University autonomy : A jaded concept". *University News* 18(24); 15 Dec 80 : 683.
Matthai, Ravi J. "Experiments in educational innovation of the "Rural University." *ICSSR Research Abstracts Quarterly* 7(1-2); Jan-June 78 : 31-49.
Park, Dabney. "What management is and isn't". *Educational Record* 61(4); Fall 80 : 72-5.

CURRICULUM

Chandrakant, L.S. "New perspectives for technical and vocational education in national economic development." *Bulletin of the Unesco Regional Office for Education in Asia and Oceania* (21); June 80 : 288-302.
Dhote, A.K. "Vocationalisation of education : A perspective." *Journal of Indian Education* 6(1); May 80 : 14-18.
Gaff, Jerry G. "Avoiding the potholes : Strategies for reforming general education." *Educational Record* 61(4); Fall 80 : 50-9.

TEACHING

Habeshaw, Trevor. "Towards a system of continuing self-development for teachers." *British Journal of Educational Technology* 11(1); Jan 80 : 48-56.
Qazi, Salahuddin. "Teaching technology in the oil rich countries." *Higher Education* 9(6); Nov. 80 : 743-8.

EDUCATIONAL TECHNOLOGY

Edmonds, Earnest. "Where next in computer aided learning ?" *British Journal of Educational Technology* 11(2); May 80 : 97-104.
Zarraga, M.N. "Computer timetabling and curriculum planning." *Educational Research* 22(2); Feb 80 : 107-30.

EVALUATION

Eggleston, John. "Educational objectives in the 1980s". *Prospects* 10(3); 1980 : 294-303.
Katzell, Mildred E. "Credentialing." *New Directions for Testing and Measurement* (3); 1979 : 49-60.
Leonard, Martin. "Rasch promises : A layman's guide to the Rasch method of item analysis." *Educational Research* 22(3); June 80 : 188-92.
Lerner, Barbara. "Tests and standards today : Attacks, counter attacks and responses." *New Directions for Testing and Measurement* (3); 1979 : 15-31.
Rami Reddy, A. Venkata and Sinha, G. Prathapa. "Which do they want : IA or TS " A comparative study. *Journal of Higher Education* (Delhi) 4(3); Spring 79 : 400-6.
Roid, Gale and Haladyna, Tom. "The emergence of an item-writing technology." *Review of Educational Research* 50(2); Summer 80 : 293-314.
Sankara Reddi, G.H. and Lohi Das, T. "Semester pattern and internal assessment system in agricultural universities in India : A critical review." *Journal of Higher Education* (Delhi) 4(3); Spring 79 : 413-7.

ECONOMICS OF EDUCATION

"EDUCATION AND job market : A seminar report." *Centre for Educational Policy and Management Bulletin* 6(1); July 80 : 1-14.
Graffiths, R.C. "Aid policy for universities in developing countries : A British view. "*Higher Education* 9(6); Nov 80 : 693-705.

PROFESSIONAL EDUCATION

"ENGINEERING OUR future : Issue on Finniston Report." *Higher Education Review* 12(3); Summer 80 : 3-56.

ADULT EDUCATION

Jayagopal, R. "University and emerging educational technologies for adult and continuing education." *Journal of Higher Education* (Delhi). 4(3); Spring 79 : 365-71.
Kidd, Ross and Krishna Kumar. "Co-opting Freire : A critical analysis of pseude-Freirean adult education." *Economic and Political Weekly* 16(1-2); Jan 3-10, 81 : 27-36.
Sacks, H. "Flexi Study : An open learning system for further and adult education." *British Journal of Educational Technology* 11(2); May 80 : 85-95.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

Adelman, Clem and Gibbs, Ian. "The emergence of the colleges of higher education." *Educational Research* 22(2); Feb 80 : 97-106.
Owen, Tom. "The University Grants Committee." *Oxford Review of Education* 6(3); 1980 : 255-78.
Peterson, A.D.C. "Education in the 1980s : England and Wales." *Comparative Education* 16(3); Oct 80 : 275-80.
Senf, Hans. "Co-operation between school and family in the German Democratic Republic." *Prospects* 10(3); 1980 : 340-5.
Suchodolski, Bogdan. "Into the 1980s : Perspectives and prospects in Poland." *Comparative Education* 16(3); Oct 80 : 303-9.
Wirt, Frederick M. "Comparing educational policies : Theory, units of analysis and research strategies." *Comparative Education Review* 24 (2 Pt. 1); June 80 : 174.

UNIVERSITY OF BURDWAN

RAJBATI : BURDWAN
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Applications in the prescribed form are invited for the following posts in the approved scales of pay (viz. Professor — Rs. 1500-60-1800-100-2000-125/2-2500/-, Reader — Rs. 1200-50-1300-60-1900/- and Lecturer — Rs. 700-40-1100-50-1600/-) plus dearness and other allowances, pensionary benefits according to the rules of the University.

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A.K. Chaudhuri
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(ii) Consistently good academic record with first or high second class (B in the seven point scale) Master's Degree or an equivalent degree of a foreign University.

For the post of Project Officer

Consistently good academic record with first or high second class (B in the seven point scale) Master's Degree or an equivalent degree of a foreign University.

Experience

For A & B : Adequate experience in NSS/NCC/NAEP work in Colleges or Universities.

All appointments will be made temporarily on contract basis for the duration of the scheme which is 3 years at present. If the scheme is withdrawn or abolished, no claim for absorption of such persons will be entertained under any circumstances.

The choice of the Selection Committee may not necessarily be confined to those who apply formally.

For application form and other information apply to the Registrar with a self-addressed stamped (0.50p.) envelope (9″ x 4″).

Last date for submission of application with requisite fee of Rs. 5/- is **21st March, 1981**.

A.K. Chaudhuri
REGISTRAR

AMERICAN STUDIES RESEARCH CENTRE

HYDERABAD-500007

Applications are invited or the position of ACADEMIC ASSOCIATE (History/Social Sciences).

To act as an adviser to ASRC scholars, to aid in the editing of ASRC publications, to work as a subject specialist in developing the library collection, to coordinate the Centre's conference and lecture programme and the ASRC scholarship programme.

Qualifications

Ph.D. in history or one of the social sciences, or in American Studies; demonstrated ability as a research scholar; and minimum five years' experience in research guidance, editorial work, and postgraduate teaching. Highest proficiency in oral and written English is absolutely required.

Scale

Senior Rs. 1500-60-1800-100-2000-125/2-2500.
Junior Rs. 1200-50-1300-60-1900.

The selected candidate will be given one of the above pay scales depending on his/her qualifications and experience.

Selected candidate will be on contract for two years, renewable for another term.

Candidates called for interview will be paid first-class roundtrip train fare and be given local accommodation.

Applications giving full particulars should be sent through proper channels on or before **31 March 1981** to : The Director, American Studies Research Centre, Hyderabad-500007.

INDIAN INSTITUTE OF TECHNOLOGY KAPNUR

Advertisement No. 3/81

Applications are invited for two posts of Assistant Professor/Lecturer in the laboratory for Lasers and Laser Systems, Department of Physics. The laboratory for Lasers and Laser Systems will develop into an inter-disciplinary advanced centre. The Laser laboratory seeks individuals with ability and aptitude for teaching, research and development in the areas of Lasers and Laser technology. If suitable candidates are available both posts could be filled in at the level of Assistant Professor. The appointment may be shared, if necessary, between the Laser Laboratory and the Department of the discipline in which the candidate has taken his Ph.D.

(i) Assistant Professor

Scale of Pay

Rs. 1200-50-1300-60-1900.

Qualifications : (a) Essential

Doctorate in Physics, Chemistry, Electrical Engineering or Mechanical Engineering with good academic record and at least three years of professional experience in the areas of Lasers or Laser technology with good research/development record, outside the work for degrees as evidenced by research publications in journals of repute and/or developmental project reports.

(b) Desirable

Experience in teaching undergraduate/post-graduate programmes and a record of independent research—proficiency in the areas of lasers, laser technology, electronic instrumentation or scientific instrumentation.

(ii) LECTURER

Scale of Pay

Rs. 700-40-1100-50-1600

Qualifications : (a) Essential

Doctorate in Physics, Chemistry, Electrical Engineering or Mechanical Engineering with good academic record and adequate research and development experience resulting in research papers of good quality.

(b) Desirable

Some teaching/research experience and a strong interest in developing undergraduate/postgraduate programmes and also in research and developmental activities in the areas of lasers, laser technology, electronic, instrumentation or scientific instrumentation.

The Laser laboratories are fairly well equipped with different types of lasers and laser systems as well as related spectroscopy and microwave equipment. A number of candidates have been trained for Ph.D. and Masters degrees in these laboratories. The Institute has well equipped laboratories and central facilities. The Computer Centre has DEC 10, and PDP 1 systems as also ECIL TDC 216 and a group of experienced programmers. The following central facilities are available. 2McV Van de Graff accelerator, 4096 multi channel analyser and other radiation detection equipment, liquid nitrogen and liquid helium plants, NMR, EPR, Mass Spectrometers, X-ray laboratory, UV and IR spectrometers, Glass Blowing shop, Crystal Growth facility, Precision Machine Shop, Electron Microscope besides a large workshop for the fabrication of specialized research apparatus. The Institute has a library with more than 1,50,000 volumes and 1,300 periodicals.

Residential housing is provided on Campus. The Campus facilities include primary and higher secondary schools, a health centre and shopping centre. Besides, there is a swimming pool.

If both the posts are filled at Lecturers level, one post will be reserved for SC/ST candidate. In such a case and in the event of non-availability of SC/ST candidate the reserved post would be treated as dereserved.

Posts are permanent and carry retirement benefits in the shape of CPF Scheme or CPF-cum-Gratuity Scheme or GPF-cum-Pension-cum-Gratuity Scheme as may be opted according to rules. The age of retirement is 60 years. During the first year the appointment will be on probation. Besides the pay, posts carry allowances according to the Institute rules, which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare from the place of duty in India to Kanpur and back by the shortest route.

Applications from within India must be made on prescribed form obtainable free of charge from the Registrar of the Institute by sending a self addressed unstamped envelope of 25 cm x 10 cm size. Applications should be accompanied by a postal order for Rs. 7.50 (Re. 1.87 for Scheduled Castes/Tribes candidates).

Applicants from abroad may apply on plain paper enclosing complete bio-data and names of three referees from whom reference letters may be obtained.

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016, U.P. (India) **on or before March 20, 1981.**

MEERUT UNIVERSITY

MEERUT

Applications are invited for the following teaching posts ;

(A) PROFESSOR : One post of Professor of Zoology in the grade of Rs. 1500-60-1800-100-2000-125/2-2500.

Minimum Qualifications for the Post of Professor

1. (a) Doctorate in the subject of study concerned or a published work of a high standard in that subject; and
   (b) Consistently good academic record (that is to say, the overall record of all assessment throughout the academic career of a candidate) with First class or High second class (that is to say, with an aggregate of more than 54% marks) in Master's Degree in the subject concerned or equivalent degree of a foreign University in such subject.
2. Atleast FIVE years Research/Teaching Experience in a University or a recognised Institution and should have distinguished himself as researcher and should have competence to give post M.Sc. courses and guide research.
3. Where the Selection Committee is of opinion that the Research work of a candidate, as evidenced either by his thesis or by his published work, is of a very high standard, it may relax any of the requirements specified in No. 1(b).

Desirable

Specialisation in parasitology/experimental parasitology.

(B) One temporary post of Reader in PHYSICS in the grade of Rs. 1200-50-1300-60-1900 sanctioned by the University Grants Commission under COSIP—University Leadership Project for a period of about TWO years.

Minimum Qualifications for the post of Reader

1. (a) Doctorate in the subject of study concerned or a published work of a high standard in that subject; and
   (b) Consistently good academic record (that is to say, the overall record of all assessment throughout the academic career of a candidate) with First class or High Second Class (that is to say with an aggregate of more than 54% marks) in Master's Degree in the subject concerned or equivalent degree of a foreign University in such subject.
2. Atleast FIVE years Research/Teaching experience in a University or a recognised Institution and should have distinguished himself as researcher and should have competence to give post M.Sc. courses and guide research.
3. Where the Selection Committee is of opinion that the research work of a candidate, as evidenced either by his thesis or by his published work, is of a very high standard, it may relax any of the requirements specified in No. 1 (b).

Specialization for the post of Reader in Physics

Preference will be given to candidates having experience in Experimental Physics in the area of Electronics/Material Science/Nuclear Physics supported by published research work.

Note : For the above mentioned posts of Professor in Zoology and Reader in Physics other things being equal, preference will be given to Scheduled Caste/Tribe candidates who are considered fit. Such candidates should indicate in their application that they belong to Scheduled Caste/Tribe and attach certificate to that effect from the District Magistrate of the District to which they belong. No other certificate for this purpose will be entertained.

Application on the prescribed form, available on request (accompanied with a self addressed envelope of size 23x10 cm and stamped for Re. 0.80 p.) free of cost, from the Assistant Registrar (Academic), Meerut University, Meerut with relevant testimonials publications etc. accompanied by a Bank Draft of Rs. 7.50 payable to the Finance Officer, Meerut University, Meerut should reach the Registrar, Meerut University, Meerut by **11th April 1981**. The candidates who are in service must send their applications through proper channel. Application forms to out station candidates will be issued by post up to **7th April 1981**.

V.B. Bansal
REGISTRAR

CALCUTTA UNIVERSITY
CALCUTTA-700073

Applications are invited for the post of wholetime Lecturer and Reader in the grade of Rs. 700-40-1100-50-1600 and Rs. 1200-50-1300-60-1900 respectively in the following departments of the University's Post-Graduate Centre at Agartala :

(a) One Reader in Life Science;
(b) One Lecturer and one Reader in Sanskrit;
(c) One Lecturer in History.

N.B. : This appointment is specifically meant for the Post-Graduate Centre at Agartala and is subject to terms and conditions operative at that centre. This service is not of the Calcutta University and cannot be claimed to be transferred or absorbed to the services of Calcutta University at Calcutta in future.

Qualifications for Lecturers

(a) A Doctor's Degree or published work of an equally high standard; and (b) consistently good academic record with 1st or high (B+) 2nd Class Master's degree in the subject or allied subject or an equivalent degree at a foreign University.

Provided that if the selecting authority is of the view that the research work of candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent published work is not available or is not considered suitable, a person possessing a consistently good academic record (due weightage being given to M.Phil. or equivalent degree or research work of quality), may be appointed on the condition that he will have to obtain a Doctor's degree or give evidence of published work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation—Consistently good academic record means overall records of all assessments throughout the academic career leading to the Master's degree, which should at least be (B+) or high second class.

Qualifications for Readers

Besides the prescribed qualifications for lecturers (stated above) production of research papers of distinction or reputation as an efficient teacher in courses of Post-graduate Studies.

The selected candidate will be placed on probation for one year which may be waived in exceptional cases. The appointment shall be subject to the rules laid down or to be laid down for the teachers from time to time.

Applications (seven copies) in prescribed form (obtainable from the University Sales Counter on payment of Rs. 5/- or in case by post on sending a self addressed 75 paise stamped envelope of 27 cm x 13 cm size with a crossed IPO of Rs. 3/- in the name of Calcutta University) should reach the undersigned not later than the **27th March, 1981**.

The choice of the Selection Committee may not necessarily be confined to those who apply.

P. K. Mukherjee
REGISTRAR

OSMANIA UNIVERSITY
HYDERABAD-500007, (A.P.)
Advertisement No. 1/81

Applications, in the prescribed form together with the registration fee of Rs. 5/- through M.O./I.P.O./Challan 'A' are invited for the following posts in the University Service, so as to reach the undersigned on or before **23rd March, 1981**.

1. Professor of Electrical Engineering (Temporary)—Rs. 1500-2500.
2. Lecturer in Education—Rs. 700-1600.
3. Lecturers in Ancient Indian History, Culture & Archaeology—Rs. 700-1600.
4. Editorial Research Assistant Rs. 700-1600.
5. Research Associate (Linguistics) Rs. 750-1300.

Age

Professor—Not above (50) years.
Lecturers/Editorial Research—Not above (35) years.

Assistant—Not above (35) years.
Research Associate—Not above (30) years.

Note

(i) Age limit does not apply to the employees of this University.
(ii) Relaxation in age to the extent of five years may be granted to candidates belonging to SCs, STs and BCs, respectively in the case of Lecturers only.
(iii) Age relaxation can be considered in deserving cases.

14%, 4% and 25% reservations are made for SCs, STs and BCs, respectively in case of Lecturers only.

Application forms can be had from the Director, Department of Publications and University Press, O.U., Hyderabad-7, A.P. on payment of Rs. 4.50 in person or by money order or by a postal order UNCROSSED made payable to the Director and by sending a self-addressed envelope (11½" x 26½ cms.) duly stamped for ordinary or registered post.

Full particulars can be obtained on requisition from the Director, Osmania University Press, free of cost, by sending a self-addressed stamped envelope.

B. Ramachandra Reddy
REGISTRAR

CENTRAL INSTITUTE OF ENGLISH & FOREIGN LANGUAGES
HYDERABAD-500007
Advt. No. III/1981

The CIEFL announces the following courses in English and Foreign Languages, beginning on 1 July 1981 :

(1) Postgraduate Diploma (Post M.A.) in the teaching of English/English Studies /French/German / Russian/ Arabic (2 semesters : July to March);
(2) M. Litt. in English/French/German Russian/Arabic (3 Semesters);
(3) Ph.D. in English/French/German/ Russian/Arabic (6 semesters);
(4) M.A. (Correspondence-cum-Attendance) in French/German/Russian (3 years, with 8 weeks' attendance at the Institute every year during June and July); and
(5) Advanced Diploma in Translation in French (2 semesters).

A limited number of UGC and CIEFL Fellowships for M.Litt. and Ph.D. and for other courses, stipends for sponsored teachers and merit scholarships for those not in service are available.

For further details, entrance qualifications, prospectus and application form, write to the Editor, CIEFL, Hyderabad (for courses in English), and Head of the Department concerned (for courses in foreign languages) enclosing a crossed postal order for Rs. 2 drawn in favour of the Registrar, CIEFL, Hyderabad.

Last date for receipt of filled-in applications is **31st March 1981**.

BIDHAN CHANDRA KRISHI VISWA VIDYALAYA
P.O. MOHANPUR, WEST BENGAL
Advertisement No. Apptt/1/81

Applications are invited for filling up the following posts in the scale mentioned below plus other allowances as admissible under the rules of the Viswa Vidyalaya :

A. PROFESSOR-IN-CHARGE

in the scale of Rs. 1500-60-1800-100-2000-125/2-2500/- for the North Bengal Campus of the Viswa Vidyalaya.

Qualification : Essential

(i) A first or high second class Master's degree in any branch of Agricultural Science or Science basic to Agriculture or equivalent degree of a foreign University; (ii) A Doctoral degree in the subject at (i) or equivalent published work with distinguished record of research of high standard; (iii) Ten years' experience of teaching and/or research of which five years must be in the post of a Reader or in an equivalent position; (iv) Experience of successfully guiding research at the Doctoral level.

OR

(i) An eminent scholar with published work of high quality actively engaged in research; (ii) Ten years' experience of teaching and/or research: (ii) Experience of successfully guiding research at the Doctoral level.

Desirable

Demonstrated capacity of leadership in the field of academic administration in a University/Institute for at least five years preferably in an Agricultural College/University and knowledge of Agriculture and Agricultural conditions in the country, preferably in the state of West Bengal.

Age : Below 55 years.

B. **LIBRARIAN (one post)**
in the scale of Rs. 1200-50-1300-60-1900/- (likely to be revised)

Qualification : (a) Essential

(i) Uniformly good academic record with a B+Master's Degree in Library Science or B+Master's degree followed by Bachelor's Degree in Library Science; (ii) At least 10 years' experience of working in Administrative/Management position in a Library of a University or in an Institute of Postgraduate Studies; (iii) Age not less than 40 years. Relaxable in case of exceptionally qualified candidates.

(b) Desirable

(i) A Doctorate Degree or published research work of similar merit; (ii) Knowledge of at least one foreign language (other than English).

C. **RESIDENT SURGEON (two posts)**
in the scale of Rs. 1200-50-1300-60-1900/-

Qualification : Essential

(i) A first or high second class Master's degree in any Clinical Subject or equivalent degree of a foreign University; (ii) A Doctorate Degree in the relevant subject or published work with a good record of research; (iii) Five years' experience of teaching and/or research, of which three years must be as Lecturer or in a post of equivalent rank.

Desirable

Five years' clinical experience in a district level Hospital or equivalent Institution.

Age : Below 50 years.

D. **HOUSE SURGEON (One Post)**
in the scale of Rs. 700-40-1100-50-1600/-

Qualification : Essential

(i) A consistently good academic record with first or high second class Master's degree in any Clinical Subject or equivalent degree of a foreign University; (ii) A Doctoral Degree in the subject or published research work of an equally high standard.

Desirable

Three years' clinical experience in a Dist. level Hospital or equivalent Institution.

Age : Below 45 years.

E. **ASSISTANT LIBRARIAN**
(Three Posts—2 for Central Library, Mohanpur & the other for North Bengal Campus) in the scale of Rs. 700-40-1100-50-1600/-

Qualification : Essential

(i) Uniformly good academic record with a B+ Master's degree with a Bachelor's degree in Library Science or Master's degree in Library Science; (ii) Age not below 30 years. Relaxable in the case exceptionally qualified candidates.

Desirable

At least 7 year's experience in a recognised Library preferably belonging to University or in a Institute of Higher Learning.

F. **ASSISTANT COMPTROLLER**
(Three Posts)—in the scale of Rs. 700-40-1100-50-1600/-.

Qualification : Essential

(i) Uniformly good academic record with a (B+) Master's Degree or its equivalent; (ii) At least five years' experience involving supervision, control, planning & management of accounts and audit.

OR

Preparation of budget in a Government/Quasi-Government organisation or University/Institute of Higher Learning;

(iii) Age not below 30 years. Relaxable in the case of exceptionally qualified candidates.

Desirable

Membership of Institute of Cost and Chartered Accountants of India or a degree of diploma from a recognised Institute or Management or passes SAS Examination. The requirement of Master's Degree will be waived in the case of candidates with good academic record and at least 10 years' working experience in senior position in any of the Universities or Institute of Higher learning involving budgeting and maintenance of Accounts and Audit.

N.B. : Candidates applied in response to APPTT/4/80 need not apply again.

G. **ASSISTANT MEDICAL OFFICER**
(One Post) in the scale of Rs. 700-40-1100-50-1600/-.

Qualification : Essential

(i) An M.B.B.S. degree recognised by the I.M.C.; (ii) At least 5 years' experience of medical practice in Government/Military/Quasi-Government hospitals or 7 years' private medical practice of reputation; (iii) Age not below 30 years. Relaxable in the case of exceptionally qualified candidates.

Desirable

Diploma in Public Health/Tropical Medicines or Post-graduate Degree in Medicine or allied medical subjects.

H. **JUNIOR DAIRY BACTERIOLOGIST (One Temporary Post—**Likely to continue) in the scale of Rs. 600-35-670-40-870-45-1050-50-1250/-.

Qualification : Essential

A Degree in B.Sc. (Dairy Technology) or M.Sc. (Dairy Bacteriology/Microbiology) or B.Sc. (Microbiology) with 2 years' experience in any Food Laboratory.

Desirable

Experience in Microbiological Analysis of Dairy/Food Products.

Age : Below 30 years.

I. **JUNIOR DAIRY CHEMIST**
(One Post Temporary—Likely to continue) in the scale of Rs. 600-35-670-40-870-45-1050-50-1250/-.

Qualification : Essential

A Degree in B.Sc. (Dairy Technology) or B.Sc. (Chem.) with I.D.D. (D.T.).

Desirable

Two years experience in the Chemical Analysis of Dairy Food Products.

Age : Below 30 years.

Experience and age limit may be relaxable on the recommendation of the Selection Committee in the case of candidates otherwise qualified. A high initial pay in the scale may be granted on the basis of qualifications, experences and present emoluments.

Applications must be submitted in the prescribed forms obtainable from the Office of the Registrar, Bidhan Chandra Krishi Viswa Vidyalaya, P.O. Mohanpur, Dist. Nadia, West Bengal by remitting crossed Indian Postal Order for Rs. 8.00 (eight) for categories A to G & Rs. 3.00 (three) for category H & I in favour of the 'Bidhan Chandra Krishi Viswa Vidyalaya' between 11.30 A.M. & 4.00 P.M. on week days and between 11.30 A.M. & 1.00 P.M. on Saturday.

Application forms may also be obtained by post by sending a self addressed envelope stamped Re. 0.50 (fifty paise) only and the necessary **Postal Order.**

Persons already in employment should apply through proper channel.

Applications completed in all respects should be submitted to the office of the undersigned by the **19th March, 1981** in an envelope superscribed with the name of the post applied for.

Candidates called for interview will have to appear at their own cost.

REGISTRAR

UTKAL UNIVERSITY

VANI VIHAR, BHUBANESWAR-4

Advertisement No. Ad(P)Dev.I/5395/81
Dated 23/2/81

Applications in seven copies are invited in the prescribed form alongwith attested copies of certificates and marklists of all examinations passed for the posts of Research Associate under the State Bank Endowment in the P.G. Department of Analytical and Applied Economics of the University on or before 15.3.81. The posts shall continue for 5 years initially after which it shall be reviewed.

Scale of Pay

Rs. 700-1600/-.

Qualification : Essential

M.A. Second Class in Economics or Analytical or Applied Economics. Preference will be given to candidates who have specialisation in Rural Economics or Agricultural Economics.

Prescribed application forms can be had from the Office of the Registrar, Utkal University in person on payment of Rs. 7.49 including local sales tax (Rupees seven and paise fortynine) only or by post on receipt of a Crossed Indian Postal Order for Rs. 9/- (Rupees nine) only payable to the Registrar, Utkal University, Vani Vihar, Bhubaneswar-4.

Candidates in Govt. service, if selected, for the post for which they have applied would be asked to pay pension contribution and leave salary in case they join the University Service on foreign service terms and conditions.

S.K. Ray
REGISTRAR

BHAGALPUR UNIVERSITY

Advertisement Notice

Applications on prescribed form are invited from Indian Citizens for the following posts under the Bhagalpur University Service in the scale of pay as mentioned below plus other allowances admissible as per rules of the Bhagalpur University :

1/81 One permanent post of University Professor of Hindi.

2/81 One permanent post of University Professor of Sociology with specialization in Urban Sociology/Social Anthropology/Social Pathology.

3/81 One permanent post of University Professor of Labour & Social Welfare with specialization in Social Planning.

4/81 One permanent post of University Professor of English.

5/81 One permanent post of University Professor in English with specialization in "Linguistic and English language teaching".

6/81 One permanent post of University Professor of Political Science with specialization in "Political Sociology".

7/81 One permanent post of University Professor of Statistics.

8/81 One permanent post of University Professor of Chemistry with specialization in "Bio-Chemistry".

9/81 One Temporary posts of University Professor of Geography with specialization in Anthropogeography/Land use/Population Geography.

10/81 Six posts (4 Permanent & 2 Temporary) of Reader/Professor in Hindi.

11/81 Eleven permanent posts of Reader/Professor in English.

12/81 One permanent post of Reader in English with specialization in Linguistics and English language teaching".

13/81 Two posts (One permanent and one temporary) of Reader/Professor in Philosophy.

14/81 One permanent post of Reader/Professor in Political Science.

15/81 One permanent post of Reader in Political Science with specialization in "Comparative politics".

16/81 One permanent post of Reader/Professor in Economics.

17/81 One permanent post of Reader in Economics with specialization in "Econometrics/Mathematical Economics".

18/81 One permanent post of Reader in Economics with specialization in "Regional/Economics/International Economics".

19/81 Four posts (One permanent & Three temporary) of Reader/Professor in Psychology.

20/81 One permanent post of Reader in Psychology with specialization in "Psychological Counselling".

21/81 One permanent posts of Reader in Home Science.

22/81 Two permanent posts of Readers in Bengali.

23/81 Three permanent posts of Reader/Professor in Urdu.

24/81 One permanent post of Professor in Persian.

25/81 One temporary post of Reader in History (Leave vacancy).

26/81 One permanent post of Reader in History with specialization in "Ancient Indian History".

27/81 Two permanent posts of Reader/Professor in Statistics.

28/81 Three permanent posts of Reader/Professor in Mathematics.

29/81 Eight posts (Six permanent & Two temporary) of Reader/Professor in Physics.

30/81 Nine posts (Eight permanent and one temporary) Reader/Professor in Chemistry.

31/81 One permanent post of Reader in Chemistry with specialization in "Organic Chemistry/Analytical Chemistry".

32/81 Four permanent posts of Reader/Professor in Zoology.

33/81 One permanent post of Reader in Zoology with specialization in "Comparative Endocrinology".

34/81 One permanent post of Reader in Zoology with specialization in "Cytogenetics".

35/81 One permanent post of Reader in Zoology with specialization in "Systematics".

36/81 Three posts of Reader in Botany/One permanent and two temporary).

37/81 One permanent post of Reader in Botany with specialization in "Cytogenetics/Texonomy".

38/81 One permanent post of Reader in Botany with specialization in "Palaeo Botany".

39/81 Five posts (Four permanent and one temporary) of Reader/Professor in Commerce.

40/81 One permanent post of Reader in Commerce with specialization in "Industrial Management".

41/81 Two permanent posts of Reader for the Centre for Regional Studies. The candidates possessing requisite qualifications for the post of Reader in the following subjects are eligible to apply :

(1) Pol. Science, (2) Economics, (3) Sociology, (4) L.S.W., (5) R.E. & Co-Op., (6) Chemistry, (7) Botany, (8) Zoology and (9) Commerce.

Scale of Pay & Minimum Qualifications for the post of University Professor

Scale of Pay

Rs. 1500-60-1800-100-2000-125-2500/-.

Minimum Qualification

Teachers of repute possessing high academic qualifications, who has already distinguished himself in the subject concerned by his research and published works of high standard and who possess a doctorate degree and has atleast ten years post-graduate teaching experience and also considerable experience of successful guidance of research work.

Scale of Pay & Minimum Qualifications for the post of Reader/Professor

Scale of Pay

Rs. 1200-50-1300-60-1900.

Minimum Qualification

1. A first or High Second Class Master's Degree or equivalent degree of a foreign University in the subject concerned, with consistently good academic record, followed by a Doctor's degree, and

2. With atleast 5 years teaching experience in post-graduate classes or 7 years teaching experience in Honours and Post-graduate classes taken together or 12 years teaching experience in degree classes.

Provided that the requirement of a first or High Second Class Master's Degree for appointment to the post of Reader/Professor may be relaxed to bare second class in the case of a teacher who, apart from obtaining his own Ph.D. Degree has successfully guided research work leading to the award of Doctorate Degree or has published considerable research work in standard journals beyond what he did for the Doctorate Degree and has put in at least eight years of teaching experience in the post-graduate classes or ten years of teaching experience in the Honours, or Honours and Post-graduate classes taken together or fifteen years of teaching experience in degree classes.

Reservation

Some posts are reserved for the candidates belonging to SC/ST/Backward classes/Women, and economically backward class in the manner prescribed in the statutes. In case no such suitable candidate is found the post will be converted into general post.

Note

(a) The candidates of the aforesaid categories while applying for the post must submit a caste certificate duly granted by D.M./Sub-Divisional Officer/or any other Gazetted Officer duly authorised

(Contd. on page 144)

BHAGALPUR UNIVERSITY

Advertisement Notice

Applications on prescribed form are invited from Indian citizens for preparation of panel for appointment to the post of Lecturers in the scale of pay of Rs. 700-40-1100-50-1600 and Rs. 400-40-800-50-950 plus admissible allowances as per rules of Bhagalpur University in the following subjects :

Name of the Subjects

Advt. No.	42/81	Hindi
,,	43/81	Maithili
,,	44/81	Sanskrit
,,	45/81	English : (One post reserved for with specialization in Indian Writing in English).
,,	46/81	Bengali
,,	47/81	Urdu
,,	48/81	Persian
,,	49/81	Sociology
,,	50/81	Geography
,,	51/81	Psychology
,,	52/81	Political Science
,,	53/81	History
,,	54/81	Philosophy
,,	55/81	Economics
,,	56/81	Mathematics : (One post reserved for with specialization in "Applied Mathematics")
,,	57/81	Commerce
,,	58/81	Home Science
,,	59/81	Physics
,,	60/81	Chemistry : (Two posts reserved each for with specialization in "Bio-Chemistry" and "Physical Chemistry").
,,	61/81	Botany : (Two posts reserved each for with specialization in "Algology" and "Embroylogy/Angiosperm/Morphology").
,,	62/81	Zoology : (Two posts reserved each for with specialization in "Animal Lubarion/Embryology" and "Applied Entomology")
,,	63/81	Geology
,,	64/81	Santhali
,,	65/81	Music : (One post reserved for Instrumental Music)
,,	66/81	Labour & Social Welfare : (One post reserved for with specialization in "Labour Law and Social Security/Industrial Relation/Collection Bargaining").
,,	66/81(A)	Statistics

(Some posts are reserved for women but men can be appointed in the absence of suitable Women candidates.)

Minimum Qualifications

(Except for the post of Lecturer in Home Science, Music & Santhali)

A first or high Second Class Master's Degree or equivalent Degree of a foreign University in the subject concerned with consistently good academic record followed by a Ph.D. or M. Phil. Degree.

Provided that in case a candidate with Ph.D. or M. Phil. Degree is not available or not found suitable preference will be given to a candidate having consistently good academic record but such a candidate shall have to obtain Ph.D./M.Phil. Degree within five years of the date of his appointment, failing which he shall cease to earn any future increment until he fulfils the requirements.

Minimum Qualification for the post of Lecturer in Home Science

At least a second class Master's Degree in Home Science or an M.B.B.S. Degree or Master's Degree in an allied subject (Psychology or M.Ed.) plus a degree or diploma in Home Science of a recognised University or (2) Bachelor's Degree with Home Science or Domestic Science as an optional subject.

Minimum Qualification for the post of Lecturer in Music : Essential

Degree or Diploma in Hindustani / Karnatak/Western (Vocal or Instrumental) Music, as may be specialized, of a recognised institution of repute.

Desirable

1. Bachelor Degree in any faculty.
2. Experience of giving recitation on Radio and in Music Conference.
3. Teaching Experience.
4. Knowledge of Hindi.

Minimum Qualification for the post of Lecturer in Santhali

1. A first or High Second Class Master's Degree in any Indian Language or an equivalent degree of a foreign University with consistently good academic records.
2. Proficiency in Santhali Language and Literature.

Note

1. In case of a candidate belonging to Scheduled Castes/Scheduled Tribes, the requirement of High Second Class Degree at the Master's stage for the post of Lecturer may be relaxed to bare second class degree.
2. M.A. Degree in Economics & Rural Economics and Cooperation shall be treated as equivalent.
3. In Home Science, preference will be given to those possessing high second class master's degree in Home Science.

Reservation

Some posts are reserved for the candidates belonging to S.C./S.T./Backward Classes/Women and Economically backward class in the manner prescribed in the Statutes. In case no such suitable candidate is found, the post will be converted into general post.

Note

(a) The candidates of the aforesaid categories while applying for the post must submit a caste certificate duly granted by D.M./Sub-Divisional Officer/or any other Gazetted Officer duly authorised by the D.M. alongwith their application.

(b) Candidates belonging to Economically backward classes and backward class while applying for the post must submit an affidavit to the effect that they do not pay income Tax or Agricultural Income Tax. This facility of reservation is admissible to only such families who, on the basis of their Annual Income are exempted from paying income Tax. Severe action under law would be taken against those who submit wrong affidavit.

Age Limit

No minimum age for the post has been prescribed but the age of superannuation is 60 years.

Separate application for each post accompanied with attested copies of mark-sheets, certificates and degrees from Matriculation and onwards with a fee of Rs. 10/- (Rs. 2.50 for S.C./S.T.) in the shape of crossed I.P.O. payable to the Registrar, Bhagalpur University, Bhagalpur-812007 must reach the undersigned by 4 P.M. on or before **7th March, 1981.**

Application form can be had from the office of the Registrar, Bhagalpur University, on payment of Rs. 2/- in cash at the counter and Rs. 5/- in the shape of crossed I.P.O. for sending the same by post on self addressed envelope of the size of 23cm x 10 cm superscribed on the envelope "APPLICATION FOR THE POST OF ....". Money Order/Cheque/Bank Draft will not be accepted.

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Canvassing in any form will be treated as a disqualification

No T.A./C.A. will be admissible for attending the interview if called for.

R.S. Singh
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Note

Applications not in conformity with the above requirements and applications received after the due date will not be entertained and no correspondence will be entertained in this regard.

K.D. Gupta
REGISTRAR

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(a) The candidates of the aforesaid categories while applying for the post must submit a caste certificate duly granted by D.M./Sub-Divisional Officer/Or any other Gazetted Officer duly authorised by the D.M. alongwith their application.

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Age Limit

No minimum age for the post has been prescribed but the age of superannuation is 60 years.

Separate application for each post accompanied with attested copies of marks sheets, certificates and degrees from Matriculation and onwards with a fee of Rs. 10/- (Rupees 2.50 for Scheduled Caste and Scheduled Tribes) payable to the Registrar, Bhagalpur University, Bhagalpur-312007 in the shape of crossed Indian Postal Orders, must reach the undersigned by 4 P.M. on or before the **16th March, 1981**.

Application form can be had from the office of the Registrar, Bhagalpur University on payment of Rs. 2/- in cash at the counter and Rs. 5/- for sending the same by post on self addressed envelope (23cm x 10 cm) in the shape of crossed Indian Postal orders superscribed on the envelope **"Application for the post of Principal."** Money Order/Cheque/ Bank Draft will not be accepted.

The applicant, while applying for the post must mention on the top of the envelope advertisement number and name of the post applied for in BLOCK LETTERS.

Canvasing in any form will be treated as a disqualification.

No T.A./C.A. will be admissible for attending the interview if called for.

R.S. Singh
REGISTRAR

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University News

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A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH MARCH 15, 1981

Air Chief Marshal (Retd.) O. P. Mehra, Governor of Maharashtra, delivering the convocation address at the University of Bombay.

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UNIVERSITY
NEWS

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Editor : ANJNI KUMAR

Reforms in Examination System

Excerpts from the inaugural address delivered by Mr. P. Venkatraman Reddy, Minister for Education of Andhra Pradesh at the National Seminar on Examination Reforms held at Mahabaleshwar.

The existing examination system has come in for severe criticism on the ground that it encourages speculation, guess work and selective memorisation of content for reproduction in the examinations. I may not be accused of exaggeration if I say that under the influence of such examinations, education has largely been reduced to a process that encourages passive absorption of facts, rote learning of answers to questions and unthinking reproduction of answers from memory. A spare of cheap guides, guess questions and answers that make their inevitable appearance in the market on the eve of examinations are ample proof of the malady that afflicts the system. In our obsession with the examination system, we are seeking desperate remedies such as shrouding the examinations in secrecy, taking the help of police and arranging flying squads, etc., but to my mind this calls for a radical reform in education itself, a reform that would shift the emphasis to discriminatory understanding of material that is read, perception of relationships and differences, application of concepts and generalisations and the development among students of skills relevant to higher cognitive levels, such as, analysis, synthesis and evaluation. I strongly feel that it should become the major concern of higher education to develop such abilities among its alumni if they have to play a meaningful and effective role in developing country like ours.

Another serious defect of our examination system today is the extraordinary importance it attaches to a single external examination at the end of the course to the exclusion of the student's performance throughout the duration of the course. Apart from the fact that such external examinations lack validity and reliability, they also give rise to a plethora of problems that cause worry to administrators, teachers, students, parents and all alike.

Semester system and internal assessment

To off set this serious defect, two innovations, semester system and internal assessment have been tried out at the University level in our country. Semester system has certain advantages, such as, reduction in the cognitive load and continuous assessment, since it calls for programming of teaching and testing for shorter intervals of time. It also induces regular study habits among students. Internal assessment is another reform that has a sound unassailable theoretical basis. No one can deny that the class room teacher, who is involved in the teaching-learning process throughout the duration of the course, is the person most qualified to assess the achievement and progress of his students. Internal assessment also provides the necessary feedback for improving the teaching-learning process and is an effective means of evaluating the teaching process too.

These two reforms have passed through various vicissitudes in several universities and the experience may vary from one University to another. It is possible that such reforms have run into rough weather in some universities because of mutual suspicion and distrust between the teacher and the taught and also because of the unsettled socio-economic conditions characteristic of the transitional period of growth through which our country is passing now. But we will be accused of tinkering with the problem and approaching it with a sense of timidity if we give up these reforms in haste. It is, therefore, necessary to consider the academic and administrative implications and inputs that have to be realised for the effective implementation of these reforms. It would also be necessary to suggest appropriate checks and balances to ensure that any possible abuse of internal assessment is prevented.

Open book examination

Another radical reform that was discussed at the recent All India Seminar in Hyderabad was the Open Book Examination. This reform has aroused much interest and controversy. Unfortunately there has not been adequate research on this subject with reference to Indian conditions for us to speak with a sense of confidence about the efficacy of this type of examination. The Review Committee on Examination Reforms at the Intermediate Level, appointed by the Government of Andhra Pradesh, has discussed this theme in its Report and suggested that it may be tried in a limited way in the tests for internal assessment, if certain essential pre-requisites are fulfilled. This reform was discussed by a group at the recent All India Seminar at Hyderabad and the group endorsed the suggestion of the Review Committee. I personally feel that this type of examination should supplement the existing system and act as a corrective to the existing bias in favour of 'Knowledge' questions by introducing test items intended to assess learning at the higher cognitive levels. Skills such as, referring to relevant reference material, collating facts, analysing data, reasoning, synthesising relevant facts and principles, arriving at rational conclusions are of great importance in higher education and it is but appropriate that this reform which is intended to test such skills should be considered in depth at a Seminar like this.

Remedial teaching

Examinations are being used largely to brand students as being successful or otherwise but I would consider that their more important function is to provide the necessary feedback to the teacher regarding the areas of the subject which have not been properly assimilated by the students. The value of formative evaluation for obtaining feedback that would influence the designing of a more fruitful teaching-learning process in the form of remedial teaching cannot be over-emphasised. Remedial teaching should form an integral part of the teaching process at all stages. It is to be realised that with the phenomenal quantitative expansion of education we have in the portals of institutions of higher learning today, first generation learners and students from deprived sections of society, who do not have any academic atmosphere or support at home. It is our first obligation to this unfortunate section of students to provide them with the necessary extra academic support in the form of remedial sessions and supervised study sessions.

Grading, question banks, etc.

The other issues of examination reform that are worth considering are Grading i.e. use of grades in place of marks, and Question Banks. The use of grades in place of marks to reduce arbitrariness and subjectivity in marking, has also been tried in a few Universities and their experience would be highly useful in arriving at a consensus in this regard. It would be good to identify aspects of each discipline that would land themselves to grading and then work out a suitable system of grading that would steer clear of the inadequate and imperfections of the marking system.

The concept of Question Banks is no longer new. It is necessary that Question Banks should be built up in every academic subject at all levels in order to have a salutary influence on the quality of question papers both in the internal tests and external examinations. I learn that commendable work has already been done in this regard by the Research Cell of the Association of Indian Universities, New Delhi and Question Banks in various subjects at the under-graduate stage have already been published by them. I would also like to stress, in this context, the urgent need for improving the quality of question papers and devising methods for making valuation of answer-scripts more objective and reliable.

Restructuring of courses at the university level

As I have stated earlier, reforms in examinations have to be viewed in the context of the totality of educational experience and the socio-economic changes that are influencing it. Education, in an emerging country like ours, must subserve the needs of its agricultural, industrial and technological development and provide the necessary skilled manpower resources for this purpose. Hence, we need a rapid transformation of the Educational Process from its purpose of yesteryears dictated by Macaulay's minute to a more dynamic purpose suited to the regeneration of India into a strong, modern country There is, therefore, a pressing need to bridge the gap that exists between the syllabi and courses of study in various disciplines, at the University level and the growing practical needs of the country. It is vital that this imbalance should be rectified and that Universities should produce the necessary expertise that would be capable of meeting the challenging

(*Continued on page 175*)

Correspondence Education

S. C. Bhatia*

The greatest challenge to the formal system of education, particularly at the stage of collegiate education, came when some universities decided to set up of correspondence education units. It was rather difficult to accept, at that time, the idea that higher education could be imparted without an extensive physical plant, academic and administrative personnel, and the constant interpersonal relationships between teachers and students considered so vital to any learning process. The presence of a campus culture has traditionally been viewed as an essential precondition to learning and even a partial gap in these facilities has stood for mediocrity. That is perhaps the reason why more money in the name of education has gone for mortar, bricks and steel that instructional software. An educational system with a higher per capita expenditure on such campus culture has always found it easier to acquire a prestigious place. This mystique of opulent splendour has also made it easier for the formal system of education to be the sole custodian of academic standards; any deviation from its form and substance has necessarily implied the fear of decline in standards.

To permit the growth of another technique—the technique of correspondence education—was partly an act of charity on the part of the formal system of education, and, partly a mark of helplessness. It was an act of charity in that great liberal tradition which encouraged experimentation of new ideas; alongside it had perhaps been made sure that the chance was fairly unfair or unequal. While the universities experimented with this technique, the reference point (the syllabli, the examination procedures and evaluation standards) lay in the formal system of collegiate education. Fields of knowledge were still taught as discrete points with further autonomous units within each subject. The integration of various learning situations was left to the black box in the human mind. In merely duplicating the details of the formal system of education, correspondence education started with an initial handicap of an absence of its own or a different reference point.

It was partly an act of helplessness because the elitist interests controlling the formal system of higher education were suddenly finding themselves in an unbearably low degree of sanitation on account of the growing social demand for higher education. Baffled by this massive over-flow of student population and the obsession to maintain bearable levels of sanitation in the available physical plant, they "succumbed" to such alternate techniques as correspondence education. Vocational colleges were also an upshot of this psychology in the Indian Universities.

The substantive motivation behind the decision to set up correspondence education units is an indication of the extent of structural constraints that these are likely to suffer from within the formal system of education. Indian Universities are run by and large on the basis of a day-to-day functioning, the maintenance of status quo; there is probably very little room for experimentation. Correspondence education must choose, in such a situation, out of two available options: learn to institutionalize its behaviour within the present formal system and develop a self-satisfying complacency, or, create a structure (the Open University is one such idea) conducive to its own growth responsive to the various segments of the learner population and their identified and perceived problems.

Correspondence education in India has been in operation in this country for nearly 20 years as part of the level of higher education. We now even have correspondence courses being offered at the school level. They come in all forms and packages; one can take such courses as the traditional undergraduate and postgraduate ones, or those aimed at adding to one's professional competence right from the teaching of English or Hindi to a course in engineering. Some universities have lately attempted to include legal education within this technique; the Bar Council does not seem to have taken kindly to it though.

The expansion of correspondence education in terms of the number of institutions offering it, the number of students enrolled and the nature of courses offered is certainly impressive. Twenty two universities, not to speak of innumerable private institutions, have started under-graduate and post-graduate courses in such universities as Madurai, Mysore, Himachal Pradesh, Punjab, Delhi, Annamalai, Rajasthan, Bombay, Andhra, Punjabi, Kerala, SNDT Women, Utkal, Jammu, Bhopal, Sri Venkateswara, Kashmir, CIEFL, Osmania, Meerut, Allahabad and Udaipur. These institutions enrol nearly 1.36 lakh students each year, nearly 50% of these joining the under-graduate courses.

All has not been well with correspondence education in India if one is to go by frequent newspaper reports about internal dissensions in such units, hardships caused to students in terms of late/irregular delivery of lessons and return of response sheets. The public at large views it a case of mismanagement, the insiders view it as a lack of team work in such institutions. Since the degree of its contact with the public is more immediate and intense than that of the regular college in the formal system of education, the correspondence course institutions periodically incur the wrath of the public like the one incurred by the Telephone Department.

It is essential to examine the structural constraints that hamper an effective growth of this technique of formal education and the manner in which this technique could be utilized for providing educational opportunities to the weaker sections of society. It

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**Coordinator, Adult Edn. & Continuing Edn. Cell, Delhi University.*

is essential to see it in a perspective different from the regular college, though no less important. It need not always be viewed as an educational situation wherein the daily classroom contact has merely been replaced by a printed set of materials through the courtesy of the post office. The correspondence educators in this country have been trying hard to exploit such aids as the Radio, the Personal Contact Programme, contact through evaluated response sheets, study centres, etc. That some of these aids and processes have not worked efficiently does not reduce their validity in the educational process. In fact, that only calls for ways to improve its functioning by a better utilisation of the existing resources and by providing for additional resources.

Most states clamouring for correspondence education units took the view that these will be income-generating propositions; it was hoped that these would be helpful in augmenting the revenue in universities. In fact, some states have used the revenues in adding to their physical plant. This narrow view of correspondence education units as teaching shops with assured income has been belied after the first few years; the University Grants Commission is gradually responding to the need for grants for such institutions.

If the correspondence education units have gone through a painful period of growth, the jitters in the ranks of the formal system of higher education have been no less severe. A lot of myths cherished in the formal system of education are beginning to collapse: (a) the teacher-initiated and controlled interaction no longer seems to make any significant difference to the performance level of the students, (b) motivation has emerged as a more meaningful variable in learning than the various compulsions or rigidities built in the formal system, and (c) the campus culture is fast assuming a "recreational" than a learning role.

Results at the public examinations have not been significantly different for the two techniques of education; in fact, there is evidence which indicates better performance by correspondence students in some cases. Instructional materials (self-study) are beginning to attract greater preference than the teacher-dominated traditional lecture hour. The regular students have shown an equal keenness in procuring the self-study materials.

The correspondence technique in higher education has developed some engine trouble in the wake of its excessive and indiscriminate use in India. Alongside, it has failed to respond to the aspirations of the weaker sections of society both in terms of appropriate content of education and in terms of taking its infrastructure to rural and tribal pockets. All it has been able to do creditably is to absorb the overflow of students in colleges and University departments. In that sense it has remained a non-building based formal system of education, a system that responds only to the middle and upper classes in India.

The professionals in correspondence education in India seem to be well aware of the various constraints that have narrowed down the possibilities of its effective functioning. Various universities have been clamouring for seeting up such units without regard to meaningful forecasts in enrolment potential of the area and the degree of proximity of another such institution. It has generally been felt that a unit with an enrolment of 5,000 is economically viable; we now have units which have as low an annual enrolment as 50; of the 22 universities, 13 fall below the viable figure of 5,000 students per year. Kashmir (996), Osmania (620), Meerut (600), Allahabad (254), and Udaipur (50) are at the lowest points of enrolment.

This uneconomical expansion in correspondence units took place in an ethos where the governing assumption was the self-supporting nature of correspondence education. One may question the validity of this assumption in the context of the growing social demand for higher education and in view of the urgent need to initiate measures for greater equalisation of opportunity. Yet that should not become basis for every State clamouring for one or more correspondence education units. It is now being argued that correspondence education or any other technique in non-formal education should become a central subject to initiate a process of setting up an Open University. The Open University could then go about streamlining the economic viability and social accountability of correspondence education. It may also mean rationalizing the existing number of units in terms of the extent of population and enrolment potential in each region. That would create an appropriate climate for a better provision of such facilities as Personal Contact Programme, Group tutorials, etc.

The Open University could also become an institution looking into ways and means by which an alternate system (e.g. the non-formal) of education could become a source of life-long education for people from weaker sections of society which have hitherto been neglected. This calls for a study of the sociology of education for the weaker sections of society. We do not seem to have realized in this country that mere multiplication of elitist structures of formal education will not necessarily open up the doors to the weaker sections of society. It may at best create a few neo-brahmins out of them leaving the rest to their low socio-economic status.

However, rationalization of correspondence education in terms of its economic viability and social accountability would require a necessary recycling of its existing trained manpower to meet new challenges. The biggest obstruction in any meaningful transformation in the formal system of education in India is clearly manifest in its instructional and administrative personnel. They have become a vested interest reacting aggressively on account of an eternal sense of insecurity created by any contemplated change. So long as that situation continues further deterioration in the use of this technique is inevitable.

Correspondence education units in the country have demonstrated their ability to high performance in a situation of scarce resources. These units have almost

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Women's Education and Women's Colleges

K.R. Ramachandran Nair*

One of the most significant developments in modern India has been the spread of education among women and the improvement in their social status. This is in sharp contrast to the extremely unsatisfactory social status women had to content with at the beginning of this century and before. Our Constitution gives equal status and rights to women with men in all matters including education. Today the total enrolment of girls in our educational institutions is above forty million. In higher education alone it is about 630000 forming 26% of the total enrolment at that level. There are about 550 colleges exclusively for women forming about 17% of the total number of colleges in the country. This, of course, falls short of Kothari Commission's hope that by 1976 the percentage of women students in higher education would be thirtythree. The Committee on the Status of Women in India highlighted the fact that even today three women out of four are illiterate. Thus we have still a long way to go to convert the *de jure* equality the Constitution confers on women into *de facto* one.

One of the fields in which the *de jure* equality sanctioned and ordained by our Constitution for women is not permitted to attain *de facto* status is that of higher education. In theory higher education is open to all, even to the dullest. The women who receive secondary and higher education form only about five percent of the corresponding age gronp and come mostly from upper and middle class in urban areas. Apart from this, there is an artificially created sex distinction observed in our country in the matter of permitting courses of study, choosing extracurricular activities, subjecting to academic discipline etc. which effect women students adversely and rob off much of the pleasure and benefits of higher learning from them. For instance, separate women's colleges have been and are still a fashion in some parts of the country with the ostensible purpose of serving the cause of higher education for women. These women's colleges often try to perpetuate an obscurantist and isolated identities defying all principles of progressive education. The justification or otherwise of such colleges can be established only after analysing the form, content and structure of the type of higher education our young women need at present.

The reluctance to send girls to schools is not essentially an Indian phenomenon as we are inclined to think. Even in the West, till recently, parents used to think that girls' education was not a productive investment. Until the women libbers began their vituperative attack on male dominance, the West was comfortable in its thinking that woman is an inferior man and woman's subjection to man is the law of nature. In 1948 John Newsom in his book 'The Education of Girls' condemned the practice of administering the same curricula to both boys and girls because he held that the only role women had to play in society was as good housewives and homemakers. However, today even in developing countries there is a better appreciation of the role of women and there is a general agreement in the matter of educating them. The differences between education for boys and girls is treated as too superficial to justify separate treatment for them. Technological changes, uncertain social and moral values, earlier physical maturity and late marriage, the possibility of creative participation in social and political activities, earning through jobs and the new phenomenon of education-work-marriage-work cycle have all had powerful impact on the concept of women's education.

Students motivation and parental attitude studies have shown that girls in India go to colleges for the following five reasons:

i) With the nuclearisation of the family a sense of social insecurity has set in. higher education gives a sense of social security for women who have to face the world alone.
ii) Educated boys want to marry educated girls. So higher education helps girls to get better marriage partners.
iii) The few years of college life fill the gap between schooling and marriage.
iv) Higher education is a status symbol. Certification rather than education is the aim.
v) Higher education might enable girls to pursue a respectable career.

Once it is conceded that women should not only be allowed but also be encouraged to go for higher education, it is time to consider what type of higher education and higher educational institutions women in our country need. There are two considerations about the relevance and pattern of higher education for girls. Firstly, how far is it related to certain national goals in terms of its role in manpower and human resource mobilisation in the economic or occupational sense. Secondly, how far does it enable women to play their role in the family and its immediate environment as good housewives and mothers. Traditionally our attitude towards women's education has been conditioned by the latter consideration. This is in spite of our realisation that women's education should enable them to participate in the life of society. The contradiction between tradition and social demands as reflected in the structure and content of women's higher education has given rise to several anomalies. One of them is the assumption that women and men require

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separate curriculum, extracurricular activities and type of discipline. Yet another is the belief that only women's colleges can effectively cater to the higher educational needs of women.

'Woman is part of man; they rise or sink together' wrote Tennyson in the nineteenth century. But our twentieth century pretenders to educational wisdom still believe in a protective segregation of women from men in the matter of educating them. They do not realise that the supposed differences between men and women are more due to the conditioning of individual children into 'culturally sexist stereotyping' by a male dominated society than due to genetic or environmental factors. What the women's colleges in our country do is to perpetuate this sexist stereotyping through a protective enthusiasm shown by frustrated old ladies and disgruntled old men who happen to be in charge of such educational institutions. John Dewey called education 'life adjustment'. However, women's colleges established on the great error of sex distinction in culture only help to disseminate maladjustment in social and personal relationships affecting the future of the young girls. Separating women from men in the name of educating them at an age when the former reach a level of consciousness potent enough to establish meaningful intellectual, cultural and emotional rapport with men is certainly unhealthy if not dangerous to the overall development of their personalities.

Women's colleges in our country are generally manned by women. Thus they effectively prevent interpersonal relationship between the sexes very essential for a harmonious and balanced society. The years at the university or the college should be years of intellectual and mental expansion and exploration with freedom and opportunity for long drawn out intermingling of personalities and ideas. Students should come under the direct personal influence of cultured adult minds. The cultured adult mind is not necessarily a feminine mind alone but a male one too. The pith of university educational experience is not merely the mastering of the curriculum but to have actively participated in an intellectual milieu constituted by the teachers and students of both sexes. Women's colleges in our country are only half colleges because they shy away from the progressive, vigorous and resilient touch of male excellence.

One of the arguments in favour of perpetuating separate institutions of higher learning for women has been that they are free from student activism disorder and violence that mar the male campuses. However, the happenings in Delhi, Patna, Madras and Tiruchirappalli in recent years have proved that this is an untenable claim. One of the significant revelations made through student agitations in women's colleges is that under the veneer of calm every female campus had been seething with discontent and revolt. Some of the causes and freedoms for which women students have fought in recent years only reveal the extent of regimentation and constraints the authorities had imposed on them in the name of safeguarding their modesty and character. It appears that St. Paul's dictum 'Let the women learn in silence with all subjection' has been implemented in all its severity in our women's colleges.

According to the available statistics, about one third of the five hundred odd women's colleges in the country are financially not viable. Several of them simply duplicate the courses which more viable composite colleges in the locality offer. At least in some parts of the country like Bihar, Assam, M.P. and Rajasthan, there is a shortage of women teachers especially in subjects like Physics and Mathematics. To circumvent this handicap some women's colleges offer only those subjects for which women teachers are available. This amounts to depriving women students of an opportunity to get education in disciplines that are most modern and useful from the point of future career. To guarantee the survival of such colleges myths are being spread that certain subjects like Home Science, Nursing and Catering Technology are the prerogatives of women and that women foraying into fields like geology, military science or aeronautics is not only dangerous but absolutely immodest. As a result women lag behind men in the assimilation of modern knowledge in spite of going through higher education.

A research team that studied the conditions in a few women's colleges in Delhi has reported about the generally regimented atmosphere in the campuses. Lectures and practicals with monotonous rigidity (what might be called a tutorial atmosphere), less emphasis on extracurricular activities and sports, punishments and censures meted out to the students, lack of cordiality between the girls and the teachers due to oppressive familiarity, the exaggerated social stigma attached to any attempt to rebel and the presence of the ever watchful eye of the administrator and some teachers create a feeling of guilt and sense of helplessness in the women students. In such an atmosphere learning cannot take place (in spite of teaching the syllabus completely) any more than in the male campuses bedevilled by student unrest. □

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demonstrated their capacity to save the university from bursting at its seams. Having established their viability within the university system, the next logical step should not lie in asking for a legitimate place in the brahminical hierarchy of the formal system of higher education. If that kind of behaviour is not diverted, this technique would also acquire the same redundancies detrimental to its responsiveness to the learner population in the weaker and neglected sections of society. The only way it can maintain the momentum of experimentation is by a process of constant adjustment in its reference points. □

2 0 MAY 1980

CONVOCATION

Education : An instrument of social and economic change

Education is the chief means by which we can achieve progress and transform our society and the course of our future. In the olden days only a privileged few could take advantage to education with the result that the majority of our people remained backward and they languished in the darkness of illiteracy. They do so even today on a somewhat lesser scale. More and more people are getting the benefits of education and they are increasingly becoming conscious of their role and rights as members of the society. This awakening is reflected in a larger number of people effectively participating in the processes of national development. If education has to serve as a powerful instrument of social and economic change it should improve both in quantity and more so in quality. A system of university education which produces a high proportion of competent men is of great consequence in increasing productivity and promoting economic growth. On the other hand a system of higher education which produces a large number of half-baked and indifferently educated graduates, many of whom remain unemployed or are even unemployable, would create social tensions and retard economic growth. It is only the right type of education provided on an adequate scale that can lead to national development. If these conditions are not satisfied the results would be catastrophic.

Teachers are the guardians of the quality of education. They have the greatest responsibility for improving standards. This can only be achieved if the teachers recognise their own responsibility—develop their own professional competence continuously and—additionally do all they can to promote the competence of the students entrusted to their care. The students have an equally great responsibility for the maintenance of standards. Standards in education basically depend upon two things—the motivation of students and their willingness to work hard. In the past, for a variety of socio-economic reasons, the motivation of students was very strong and that alone was enough to guarantee a proper maintenance of standards in spite of several handicaps. It is unfortunate that this motivation has deteriorated in recent years. This is probably the major factor that has led to deterioration of standards. The academic fraternity especially the teaching staff should contrive to create a sustained climate of hard work and dedication in all our institutions of higher learning. Only then can they demand the same from the students. The co-ordinated effort of all concerned will as a result raise the standards.

It is unfortunate but true that progressively we are failing to appreciate the vital difference between education and literacy. A child goes to a school to become literate. By the time he leaves the school he can be deemed to be literate. On the other hand, a student enters the portals of a University to be educated—to widen his horizons and the frontiers of knowledge. Education means acquiring of knowledge. For a person who is genuinely interested in the pursuit of knowledge every day is a day of learning. Every day gives him opportunities for acquiring more knowledge. A student becomes worthy of education or worthy of being a man of consequence when knowledge penetrates into his whole system and that cannot be achieved through mugging up "guides" and "examination-made-easy notes." It is well said:

> "A piece of charcoal glows only when fire penetrates it."

Using the same analogy an individual is deemed educated when knowledge penetrates his anatomy. This phenomenon would in turn help to dispel the darkness around.

There is a mistaken notion in the minds of many of our young men and women who feel that the be all and end all of education is the attainment of a degree and that learning terminates at a given point after which life begins. When you earn an University degree you do not reach the end of your education—you have just made a start. Education is an unending journey through life and life is the greatest school, with its successes, promises and failures, its adversities and good fortunes. The University only prepares you for this long journey and, as you move on, you must build the edifice on the foundations provided by the University. The urge and willingness to learn must become a way of life and this is for your own benefit, for the benefit of those around you and for the benefit of the society you live in.

Education to be of consequence has to be creative and imaginative. It should free us from prejudices and bias and promote mature judgement. Knowledge is a means to an end and not an end in itself. If knowledge is tempered by wisdom one would have the humility to realise one's own shortcomings and inadequacies. Wisdom and knowledge will therefore have to grow together. It is aptly said that :

"Knowledge is proud that

> it knows so much while wisdom is humble that it knows no more."

The process of learning is a two-way traffic. It is a process whereby the teachers have to ensure that what is being put across is being assimilated by the students. However, it is a matter of regret that there is lack of adequate communication between the teacher and the taught. By and large teachers think they have fulfilled their task once they have finished their lectures. It is their moral obligation to ensure that the students have absorbed what has been put across. Unfortunately this commitment to education, for a variety of reasons is on the decline. For successful teaching there has to be an effective and meaningful communication between the teachers and the taught. The success of teaching will also depend on the extent to which the teacher keeps himself aloof from all controversial politics of the day. This does not mean that the teachers and/or the students should be divorced from the political, economic, cultural or social developments in the country and should lead a cloistered life. They must be alive to the environment but not involved in the same to the detriment of their principal goal. A free and frank discussion of current problems of political and social ideologies, of men and matters carried on in a spirit of mutual tolerance and in an atmosphere of academic freedom, guided and encouraged by the teacher is not only welcome but is desirable and necessary. While the students and the teachers should be alive to politics and be knowledgeable about political developments they must refrain from indulging in active politics, if the Universities are to be preserved as temples of learning and to retain their character as such. Neglect of this concept and over indulgence in "politics" in the broader sense including the politicking within the University campuses is not conducive to learning and fulfilment to cherished goals as these distract students, teachers and administrators from their main task. Additionally the Universities instead of remaining the preserve of the educational fraternity tend to become preserves of those who for personal gains use such institutions to create instability and unrest in our temples dedicated to peace, tranquility and knowledge.

As a consequence even those teachers who are willing to act as friends, philosophers and guides of the students, are unable to play a meaningful role in helping the young to move along the right path. They are deterred from doing so for reasons which I need not reiterate.

It is often found that our young students get distracted by enticing appeals made by interested parties. Immature minds are easily liable to be led astray. Herein lies the task of the academic leadership—the task of guiding and influencing the youthful minds on right lines. This they can only do through setting an enviable example through their own actions.

It is the responsibility of the leadership in all walks of life including the political leadership to ensure that the University environment is not distrubed, the educational environment functions smoothly and those in search of knowledge are allowed to do so in an environment which should be the embodiment of tranquility. It is unfortunate that our University campuses have very often been disturbed by and through the action of outsiders and the drop outs/professional students. I appeal to all right thinking persons, especially the political elite, those who control education, those who are honoured to belong to the faculties or the teaching staff of colleges and Universities and the students to find a way out so that the large investments made in education are not negated through irresponsible actions which neither bring credit to the teachers nor the students nor serve the cause of education and the future of our youth. What we need is a creative peace on the campus, a peace that reflects the purposive involvement of students and teachers in pursuits of abiding values of lasting significance. Such a peace can come only if teachers and students realise their responsibilities, eschew unacademic ways of life and through dedication to their cause rise above pettiness for the common goal in a spirit of give and take. Communication and open minds are vital for success.

We are living in an age in which phenomenal technological changes have brought about widespread transformations in social and cultural conditions. The dislocations following in the wake of such changes have eroded some cherished values of the past and brought about conflicts and uncertainties in others. In the process we have generated feelings of apprehension and instability. These uncertainties and conflicts in the society are evident in our educational institutions. No country can prosper, no civilization can exist, no true progress can be made and nothing worthwhile can be achieved if the youth of the country are not trained in habits of self-discipline. It has been aptly said by Harry Emerson that :

> "No horse gets anywhere until he is harnessed. No steam or gas ever drives anything until it is confined. No Niagra is ever turned into light and power until it is tunneled. No life ever grows great until it is focussed, dedicated, disciplined."

One often hears that the students are indisciplined. I am afraid, I do not fully subscribe to this. I firmly and rightly believe that there are no bad soldiers, there are only bad Generals. The members of the teaching staff are the Generals of the educational institutions. If these academic giants set laudable examples the students will hopefully emulate them. This does not mean that the younger generation is not in any way responsible for the present state of affairs. We cannot clap with one hand. In this case the second hand is the student community and they are equally responsible for the current state of affairs.

I am conscious of the fact that on account of lack of opportunities there is frustration. Frustration leads to anger and in anger people do things which are not the work of enlightened minds. I can understand frustration but I cannot understand why the frustration of intellectuals should lead to wanton destruction of public property a factor which ultimately harms themselves and the country's development.

In our overpowering fascination for science and technology we are forsaking some basic human values instead of letting both progress in unison. The cultivation of our aesthetic faculties which could refine our sensitivities and develop a harmonious relationship with the world around has been and continues to be neglected. There is therefore greater need today than ever before for a serious rethinking on the content of our educational curricula. If we have to survive as a nation of civilised people we should reiterate our faith in our traditional values and adapt them to meet not only the present challenges and problems but also those we see as those of the future and give a new direction to life.

The need of the hour is development. Development calls for construction—increased production in every field of human activity. The greater the production the more the needs and demands of the people would be met. In the same sense the more qualitative the education, the more people's thirst for knowledge and value systems would be quenched and the country's well-being assured. Growth, development and production are equally vital for the well-being of the country. When these stop the underprivileged suffer the most. Any one who hinders these processes, especially production, is his own enemy, an enemy of the people and an enemy of the country.

There is the growing need of the people for education and yet regrettably at the slightest pretext students, teachers and the non-teaching staff deem it their birth right to stop the functioning of educational institutions. *Is this wisdom? Is this knowledge?*—particularly on the part of the teachers and students. When this question is put to right thinking persons their answer is an emphatic 'No.' This is an indication of the fact that we have lost our democratic values because a microscopic destructive minority is holding the well meaning majority to ransom. So the very people in the Universities who cry for freedom and who cry for democracy at the top of their voices are negating democracy by allowing the irresponsible minority to disturb and disrupt the functioning of your institutions. Education is more than an essential service to the society. It is its life line. Any interruption of the process of education is a sin—a sin against our today and more than that a sin against our tomorrows. We may claim the right to disturb our today and that too mistakenly. May one ask what right have we to disturb what does not belong to us, namely, the future. The path of destruction is not a path meant for men who aspire to leadership of the country. It is certainly not expected from men wedded to education and a culture which spells noble sentiments and values. Destruction is the handiwork of the uncouth and irresponsible.

I fully subscribe to the view that the legitimate needs and aspirations of each section of the academic and administrative communities should be met in time without waiting for matters to reach a boiling point. I feel that in a University environment there should be more and more communication between all the sections that go to constitute the University. I am convinced that every problem lands itself to a solution. Pressures used to settle issues inevitably leave behind a trail of bitterness whereas issues solved in a healthy environment of mutual trust and confidence ensure lasting goodwill. This is what we should strive to achieve in our seats of higher learning. The Chancellor, the Vice-Chancellor, the academic and administrative staff, all exist to serve one purpose—the academic interests of the students, committed to their charge.

The real task of education is to prepare the youth of today to face their obligations and responsibilities of life with courage and equanimity. Unless education becomes functional and develops a problem solving character, it will not in any way help to improve the quality of our life. The present educational system is responsible for increasing the gulf between the educated and the uneducated classes, between the intelligentsia and the masses. The intelligentsia should try to become a real service group striving to uplift the masses. There is no other way to redeem the situation than to inculcate in the young, right attitudes to wards manual work emphasising the dignity of labour and encouraging creativity. It is only through cultivation of such attitudes that we can ensure a better future for the generations yet unborn. **[Excerpts from the convocation address delivered by Air Chief Marshal (Retd.) O. P. Mehra, Governor of Maharashtra, at the University of Bombay]**

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Need for reform in university education emphasised

We must take stock of our educational system and try to understand what is the ultimate aim of our universities. One thing is clear enough. Our Universities are all cast in the same mould and there is no individuality. In foreign universities there is much individuality. For example Sussex University, London University, Oxford and Cambridge Universities have little in common either in the style of education or its scope and application. Each of these universities has its own special features. Oxford is known for humanities, Cambridge is known for its natural and applied Sciences. Sussex is known for an extremely modern and radical approach to the problem of teaching. The products of these universities are entirely different in the areas of scholarship, of attitude towards life and learning. There is famous joke about three of the universities I have named above which bears repetition. An advertisement in a newspaper for a job mentioned the minimum qualification thus : "Cambridge graduate or other equivalent." A Cambridge man asked an Oxford man what was meant by other equivalent. He replied "it means two London graduates or an Oxford graduate working part-time."

In our country there is a uniformity of curriculum, and a uniformity in lectures and examinations. In this behalf there is no distinction between universities as far situated as Delhi and Madras and the result is the entry year in and year out, of hundred of thousands of graduates of different calibres from universities with varying standards. So vast is the production of graduates that universities are finding it difficult to hold convocations. Time was when each graduate came up and received his degree from the Vice-Chancellor. Later whole groups of graduates stood in their places and received their degrees from the university officers. This too has now disappeared and the degrees are distributed by Colleges at funtions held by them in their own premises. Convocation ceremonies are for post-graduate examinations only.

Just as over production in industry causes recession, university output is also suffering from recession which in other words means unemployment. Time was when a matriculate could go far. Today even Ph.Ds are unemployed and no one looks at a person unless he is at least a B.A. or a B.Sc. and a second look is only given if a Master's degree is held. This is not because there is more to recommend an M.A., but because we have put a value on degrees. Time will soon come when even a Master's degree will not suffice and people seeking employment will strive to get a doctorate. Indeed, in some universities, the M.A. Degree is conferred without an examination after a lapse of a few years after graduation.

If you ask me about the basic reason for so much university output I shall put it down to the artificial value we have set on degrees. Recently I saw an advertisement which mentioned minimum qualification "B.A." or "Intermediate" which means the full 10+2+3 or 10+2. It is surprising that these diverse qualifications were combined for the same job. If an Intermediate was considered good enough why compel people to get a B.A. degree. There would be many good Intermediates to choose from. By mentioning B.A. degree, the Intermediates will be put off. We must now quite clearly say that the extra degrees will not be considered and the selection will be based on 10+2 results. If most jobs mention only 10+2 as the requirement and most jobs can be managed by such qualified men, the rush to get a B.A. degree merely for purposes of application for a job will cease and there will be less pressure upon Colleges and Universities. The teaching will improve as the student-teacher ratio will improve and discipline will improve because of smaller classes and more intimate contacts between the teacher and the taught. This is one end of the problem.

There is, however, another question. When we think of education, our educationists have certain cliches. We think in rather abstruse terms. One of the cliches is that the need of the hour is 'nation building education.' This is the wrong end of the question. Nation is not built but is *sui generis* and is built automatically by itself, by successful men and women. There is no such thing as nation building education. Education has to be functional and adequate. The rest follows in much the same way as Waterloo followed the playing fields of Eton and Harrow. The latter were the training grounds of discipline although they imparted no military knowledge. You cannot produce Nobel Laureates in universities. They come later and owe little to the education shared equally with others.

The second slogan is "Job-oriented education." But this slogan itself tells us that the B.As. and M.As. are not job oriented at all. If after 10+2 there was technical education one can speak of that education as job oriented. But how can we speak of our ordinary run of B.As. and B.Scs. as job oriented? We have meanwhile spent time and money in providing this almost superfluous education and the candidate has spent the three best years of his life in acquiring it.

Therefore, I would halt education at 10+2 for most purposes and would not insist on better degrees for ordinary employment. For specialised jobs there may be specialised education after 10+2 which means that the +3 stage should be job oriented or technical and higher education for those who wish to use it in other fields.

Therefore the first step in the overhaul of our university education is to scrap university education after 10+2 or 10+3 except as a foundation for research or for professions like medicine, and where applied sciences will be required, or where education is an end in itself or is to be the basis of academic life of teaching, research and the like. There will thus be three kinds of products : those qualified to fill most jobs not requiring specialisation and they will be the 10+2 or 10+3 men; those who wish to go on with the study of the subject for academic life or for research and lastly those who receive specialised technical education fitting them for specialised work and jobs. The degrees must be changed, more diploma courses introduced and we must not go by degrees but by aptitude. This is my idea of the reform of our university education. **[Excerpts from the convocation address delivered by Shri M. Hidayatullah, Vice-President of India, at the University of Delhi]**

Need to overhaul colonial education

Dr V.K. Gokak, Author and President of the Central Sahitya Academy, delivered the 31st annual convocation address of the Karnatak University. In his address he said the real education cannot be imparted without complete overhaul of the education system including the syllabus and examination procedures. Even after attaining independence our educational system had remained colonial in character. The first step in the progressive education system was to free it from slavery of surrounding blind beliefs and traditions, and for that, the interplay of both head and heart was necessary. Another important aspect of progressive education was the teaching of subject not merely mechanically but bringing out its close relation to society and surrounding circumstances.

Describing tolerance, open-mindedness and lesson of experience as other attributes of progressive education, Dr Gokak referred to the prevailing polluted atmosphere of public life of the country with warring communal and political parties with each contending its own principles as the best. Those forces had now entered universities also spoiling its atmosphere.

Dr Gokak, who delivered his address in Kannada, said he was happy that he was speaking to students in their own mother tongue. Saying that the mother tongue was as important as the motherland, he stressed that one's mother-tongue should be the medium of instruction at all levels with English taught separately as a language. He deplored that instruction was still continued in broken English with teachers not able to teach anything nor students able to learn anything. Not a single correct English sentence could be found in hundreds of answer papers but yet thousands of students pass and even secure first class. With students not able to grasp ideas and meaning correctly through English (more so in humanities), our post-graduate departments in universities had become more or less departmental stores selling overseas intellectual commodities for a fee. Dr Gokak felt and added that with English as the medium neither English nor any other subject could be learnt through it satisfactorily.

Plea for 3-year BSc health science course

Dr C. Gopalan, Director, Nutrition Foundation of India, while delivering the convocation address of the Institute of Medical Sciences of the Banaras Hindu University at Varanasi emphasised that the biomedical knowledge was doubling every ten years and a medical graduate of today would know only 50 per cent of the biomedical knowledge in 1990 and 25 per cent in 2000 A.D. He cautioned the medical graduates to be aware of the limitations and advocated that a three-year course be introduced as BSc in Health Science. The candidates passing it could work in rural areas as a super para-medical personnel, who could bridge the gap between a doctor and rural masses. Dr Gopalan also emphasised that two decades back a doctor could have practised in rural areas as clinical and pathological investigations were not so developed. A doctor with the training that he is getting today may be handicapped in practising in rural areas. It was here that a BSc in Health Science was essential.

Dr Ajit Kumar Basu, Emeritus Professor, Postgraduate Institute of Medical Education and Research, Calcutta & Dr C. Gopalan were awarded D.Sc. (Honoris Causa) by Dr Hari Narain, Vice-Chancellor of the University.

Singh calls for new approach to education

Mr C.P.N. Singh, Governor-Chancellor of Avadh University while delivering the convocation address at Faizabad said that the need of a new approach to education was of paramount importance to ensure development of human personality in its totality. Our education, he said, should aim at moulding the people into full and perfect human beings who could command respect of the whole world. Beautitude and perfection along with excellence must be the motto of all educational institutions. In accomplishing this, the Chancellor added, we could learn something from our ancient Indian society and the culture of which Avadh was an important centre and which laid stress on development of total personality and where all the needs of man-spiritual, mental and physical were sought to be met in the ashrams of the rishis.

CAMPUS NEWS

New academic complex of Indian Institute of Education inaugurated

Mr M. Hidayatullah, Vice-President of India, while inaugurating the newly constructed academic building of the Indian Institute of Education in Pune said that a thorough overhaul of the educational system was required for meeting the requirements of modern India. A high power committee may go into all the relevant issues. He said that a full analysis of the existing educational pattern with its bearing on employment, seeking of knowledge and the research and development of the nation in all spheres had become important. It had also become apparent that the existing system was not capable of meeting any or all of those needs. He said that the requirements of this pre-eminent tool to enable India to jump into the jet age were necessarily vastly different from the times when it had been first mooted and put into practice. The Vice-President also released for publication the 16th volume of the Dharmakosh and a special number of 'Navbharat.'

Mr Laxman Shastri Joshi, leading thinker and Chairman of Sahitya Sanskrit Mandal was also felicitated on this occasion. Mr Y.B. Chavan, MP, who was also present on the occasion, pleaded for a review of the educational system. While felicitating Mr Joshi for his work, wisdom and thinking, he said that most of his works were confined to Maharashtra alone but his periscope had been the entire nation. In him one witnessed together learning, patriotism and dedication to selfless service for fellow humans. Replying to the felicitations Mr Joshi said that constraints on free thinking and dialogue for progress and prosperity of mankind should be removed freely in the quest of truth. Poverty, he said, was like a ocean and unless people came together and strove hard with their minds and hearts, it would be impossible to eradicate it. Mr J.P. Naik, an eminent educationist, gave a brief account of the progress of the Institute. Mrs. Sucheta Koregaonkar, daughter-in-law of late Prabhakarpant Koregaonkar, donated Rs two lakhs to the Institute on this occasion.

Need to transform educational system

Mr Keshav Dev Gaur of the Indian Council of Social Science Research in his study has found that expenditure on education has not so far been helpful in eradicating mass poverty. The study said that it was imperative that expenditure on education in future should be investment-oriented in terms of improvement in the education system and removal of poverty. There was an urgent need to transform the educational system in keeping with the needs and aspirations of the poor people:

Mr Gaur said that poverty-oriented development strategy would be a valuable step for solving the problems of vast majority of the rural poor in India. The problems in the existing education system included increasing demand for educated manpower, adapting education to job requirements, controlling secondary and higher education and changing the pattern of demand for education. These required coordination of education, employment and labour market policies and cooperation of employers.

Rural education and training schemes should be designed as functional programmes integrated into the broader system of education and coordination with other social activities in the rural areas. Despite Government's efforts, about half of our citizens, children and adults alike were without a minimum level of education. There would be significant increase in the total number of non-schooling children and illiterate adults if no remedial action was taken.

Mr Gaur said minimum education was essential for effective participation of the masses in the development process. Low cost functional mass education was required and the concept of basic education would be an adequate approach to provide minimum leaving packages. This would offer programmes of varying content and length adapted to the needs of different groups with corresponding changes in training and the role of teachers. The education system was insufficient in using resources and often did not achieve its objectives, leading to waste of resources. Maladies like shortage of good teachers and the design and efficient use of learning materials, malnutrition and related illness reflected in drop out and repeater rates. Better specification of education and training objectives and performance standards were required followed by identification of factors likely to affect efficiency.

In India's developing economy, educational planning was important. In the absence of such planning, either scarcity of high level manpower would act as a bottleneck in the creation or full utilisation of productive capacities in various sectors of the economy or the excess supply of personnel of all or particular types would cause unemployment and poverty.

MA degree of open university recognised

The Syndicate of Madras University at its meeting held recently decided to recognise the M.A. degree examination under the open university scheme of the Mysore University for purposes of further study in the university. It also appointed a committee to upgrade the diploma course in higher education into a degree course. Another committee was appointed to work out the details of operating the offer of the University Grants Commission to introduce a training programme on drama/ performing art. It was also decided to restructure the pattern of question papers permitting objective type questions from the semester examinations of 1981. This section consists of questions providing for answers with multiple choice.

The Syndicate also accepted the recommendations of an expert committee to recognise the district headquarters hospitals of Kanchipuram, Vellore, Salem, Erode and Ootacamund for purposes of compulsory, rotatory internship training subject to the Government providing civil surgeons for heading the Departments of Medicine, Surgery, ENT, Paediatrics and Obstetrics and Gynaeocology.

A proposal to celebrate the post-centenary Silver Jubilee of the University in the course of the year was also approved. It was agreed to bring about a comprehensive book in Bengali on Tamil language literature and culture, political and social history and ethnological and anthropological identity of the Tamil people provided the State Government assisted the university for this purpose.

Seminar and conference at Marathwada

The Marathwada University organised the tenth annual conference of the Indian Society of Criminology and a seminar on Perspective Planning in Physical Education and Sports during February this year. The annual conference was inaugurated by Shri Shivraj Patil, Union Minister of State for Defence and was attended, among others, by Mr Justice Krishna Iyer, Mr Justice H.R. Khanna, Dr Hire Singh, Director of National Institute of Social Defence and Dr D.P. Jathar, Vice-Chancellor of Saugar University. It was presided over by Dr B.R. Bhonsle, Vice-Chancellor of the university.

Dr. B. R. Bhonsle
Vice-Chancellor, Marathwada University.

In his inaugural address the Hon'ble Minister emphasised that instead of punishing the criminal after he becomes one, efforts should be made by all the agencies of social defence for the prevention of crime, corruption and that attention should also be paid to victims, especially women victims. Justice Iyer said that the Society should maintain its national character and should devote to research and academic pursiut of problems in the field of Crime and Criminal justice. He appealed to the members to articulate their views and experiences fearlessly.

At the seminar on perspective planning in physical education and sports organised on the occasion of introduction of Master's Degree in Physical Education, papers were presented by eminent professors and noted authorities on the subject which helped in formulating certain guidelines in stimulating interest in Physical Education as an academic discipline.

Indo-Pacific symposium proposed on invertebrate reproduction

The Marathwada University proposes to organise, in collaboration with the University Grants Commission, the first Indo-Pacific symposium on Invertebrate Reproduction during November this year. The symposium will be the first of its kind to be held in the country and its objective is to exchange information and evaluate the present state of knowledge about various aspects of invertebrate reproduction. The topics for discussion at the symposium would be on (1) Gametogenesis, (2) Accessory sex glands, (3) Importance of Tissue culture techniques in studying gametogenesis, (4) Neuroendocrine regulations of reproduction, (5) Role of organic reserves in reproduction, (6) Somatic growth Versus reproduction, (7) Environmental synchronization of reproduction, and (8) Parasites and reproduction. About hundred delegates of national and international standing are expected to participate in the deliberations of the symposium.

PG courses in pharmacy favoured

Mr C. Aranganayagam, Education Minister of Tamilnadu has favoured the starting of post-graduate courses in pharmacy in Tamil Nadu. Inaugurating the southern regional conference of pharmacy graduates, Mr Aranganayagam said that in his capacity as Pro-Chancellor of universities in the State, he would discuss this idea with the Vice-Chancellors and the Syndicate members. As a growing science, he felt, higher education in pharmacy was essential. The State needed highly educated pharmacy graduates and research scholars and workers. Post-graduate courses in pharmacy could be started in the existing institutes and medical colleges. He said that the Government would not encourage private people starting colleges or running it on commercial basis, he said.

Mr K.N. Shanbougue, President of the Pharmacy Council of India, who presided, pointed out that as far back as in 1968 the Centre circulated to all the State Governments the guidelines for starting hospital pharmacy as recommended by an expert committee. He regretted that many States had put the report in cold storage and had not cared to start hospital pharmacy.

The Director of Medical Education, Dr S. Gnanadesikan, who released a souvenir brought out on the occasion, said the total health care hoped to be achieved before 2,000 would be a reality only with the active involvement of para-medicals including pharmacists.

Mr K. Chinnaswamy, President of the Tamil Nadu branch of the Indian Pharmacy Graduates Association said as major purchaser of drugs, government hospitals could produce many common drugs at very cheap rate.

3-year course for UP universities

The UP Education Minister, Mrs Swarup Kumari Bakshi, announced in the Vidhan Sabha that the Government had decided to introduce a three-year degree course in three universities and selected degree colleges, to make science and mathematics compulsory for boys up to the high school level, to constitute an education service commission and to create a separate education cadre for the hill areas.

The Minister, who was presenting the demands for grant of her ministry totalling Rs 318 crores, said that the provision for education was 19.4 per cent of the total plan outlay.

Varsity hostel for boys in Rohtak

Mr G. D. Tapase, Haryana Governor and Chancellor of Maharshi Dayanand University laid the foundation stone of a Rs 45-lakh university boys' hostel at Rohtak. The three-storeyed hostel will provide accommodation for 140 students, 80 in cubicles and 60 in 20 dormitories. Mr Tapase advised the students to study hard and avoid getting involved in 'other' activities. He urged the teachers and students to conduct themselves in a way that would bring name and fame to this seat of higher learning. He regretted that the traditional reverence on the part of students for their teachers was fast vanishing in university campuses.

Mr J.D. Gupta, Vice-Chancellor of the University while welcoming the Governor said that with the laying of the foundation stone of the hostel, the university had launched its first construction project since it was established in 1975-76.

VCs' meet to discuss uniform syllabi

The decision to introduce uniform syllabus and text books in all the universities in the State would be taken at a meeting of Vice-Chancellors of the Universities of Andhra Pradesh to be held on April 15. Mr P. Venkatarama Reddy, Education Minister, made this announcement in Hyderabad recently.

He said that the Vice-Chancellors' conference which was held last year presided over by the former Chief Minister had agreed to convene various boards of studies by the respective universities for revamping the syllabi bringing in the new courses which are relevant to the social needs of the agriculture and industry.

IMC and IMA to be represented on new medical college panels

The Karnataka Government has given representation to the Indian Medical Council and the Indian Medical Association on the experts committee set up to consider the question of sanctioning new medical colleges. Mr A.K. Abdul Samad, State Health Minister, made this statement in the Legislative Council and said that these representatives would be the full-fledged members of the expanded committee. The committee is likely to go into various aspects of the questions and make recommendations of starting new medical colleges in the State.

Medical and science institutes for north India

An Institute of Science and Technology will soon be set up in North-Eastern region under a central government scheme. Mr B. B. Lyngdoh, Meghalaya Chief Minister, said in Imphal that the exact premises where this institute is to be located was yet to be finalised. He said that the Prime Minister had also agreed to the proposal for setting up an advanced institute of medical science in the North Eastern region which would help the people of the region to go in for higher studies in medical sciences.

Conference on Devnagri script

The Nagri Lipi Parishad will hold an all-India conference on Devnagri script in Delhi from March 25 to 27, 1981. Scholars from all over the country will attend the conference which would consider among other things the publication of the literature of different Indian languages in Devnagri script, facilities for learning foreign languages through the medium of the script and availability in adequate number of computers, teleprinters and other instruments in the script.

Seminar on aspects of Andhra history and culture

The faculty of History and Archaeology of Besant Theosophical College, Madanapalle in Andhra Pradesh organised a seminar on defferent aspects of Andhra History and Culture. It was organised in connection with World Telugu Conference under COHSSIP of University Grants Commission. Prof. S. Sripathi Naidu was the director of the seminar.

Singh advocates new concept of education

The Governor of Uttar Pradesh, Mr. C. P. N. Singh, expressed his disappointment over the poor response by state universities to his appeal for restructuring the education system. He was speaking at the conference of Vice-Chancellors. He said that the concept of new education did not aim at doing better than what was being done in the universities but it aimed at doing something different. He regretted that not much had been done to restructure the education system which was a legacy of the colonial period and which had given rise to many difficulties from the top to bottom.

The Governor pleaded for providing vigorous and purposeful leadership to the effort for creating circumstances that would contribute to making education more purposive, creative and useful to society. He told the Vice-Chancellors to remember that the entire paraphernalia, all the funds provided and all activities in the field of education, specially higher education was meant for turning out proper, suitable and useful young men and women for the country and its activities in various spheres.

Referring to the phased introduction of three-year degree course in the residential universities of Allahabad, Lucknow and Gorakhpur and selected colleges affiliated to different other universities as recommended by a committee, the Governor said that this was necessary to bring UP into the mainstream of higher education. He complimented the Chief Minister and the Education Minister for giving full support of the proposal and asked the conference to formulate a time-table and mechanics of change. He told the VCs that the effort to curb mass copying should be sustained and due attention should be paid to the question of examination reforms.

The one-day conference was convened by the Governor-Chancellor to consider, inter-alia, the introduction of three-year degree course in selected universities and colleges from 1981-82 academic session, rationalisation of remuneration and allowances to teaching and non-teaching university staff and normalisation of academic sessions in universities. Besides the Chief Minister, Mr. Vishwanath Pratap Singh and Education Minister, Mrs Swarup Kumari Bakshi, senior State Government officers also attended the conference.

Jha commission meets Patna university authorities

The members of the Bihar University Enquiry Commission appointed by Dr. A. R. Kidwai, Governor of Bihar, to study the problems of universities in the State visited Patna under the chairmanship of Dr. V. S. Jha, former Vice-Chancellor of Banaras Hindu University. The members of the Commission had a detailed discussion on various problems of the university with the officers, deans of faculties of arts, commerce, engineering, law, principal of Patna College and members of the Syndicate of the Patna University.

The Deans of Faculties suggested to the Commission various measures for improvement of examinations. One notable suggestion was that the teachers who teach a particular subject should also be asked to set questions for university examinations at least at the post-graduate level. The Syndicates while holding discussions with the Commission members pointed out that the university had no real autonomy. The budget of the university was drastically curtailed by the Government hampering the development activities. They further expressed their resentment over the acute scarcity of space in the university, inter-university transfer of teachers and reduction of the teacher members in the Syndicate. The other members of the Commission are Dr. Sarup Singh, MP and former Vice-Chancellor of Delhi University, Prof. M. V. Mathur, former Vice-Chancellor of Rajasthan University and Dr. S. P. Sinha, Chairman of the Bihar Inter-University Board.

Kanpur seminar on open examinations

To consider the use of Open Book Examinations for law, a two-day Workshop was organised by Kanpur University exclusively for the faculty of law. Participants were drawn from all the three law colleges of the University and majority of them were also practitioners of law. Inaugurating the Workshop the Vice-Chancellor of the University, Dr Hemlata Swarup, stressed the need for the faculty to think in terms of introducing Open Book Examinations to minimise tests anxiety and use of unfair means.

Prof. V. Natarajan of the Association of Indian Universities introduced the basic concepts of Open Book both as a system and a technique. He discussed in detail its basic concepts, its objectives, its nature, format and mode and finally evaluation and grading of Open Book Examination scripts. Participants were put into two small groups to discuss several issues related to the implementation of Open Book Examination with particular reference to preparatory work involved. He reiterated that adequate preparation in terms of training the entire faculty of law in basic methodology and implications of using the Open Book System must be gone through before introduction of the new system. Some time was spent to illustrate different types of items and questions considered suitable for Open Book Examination.

Besides, abilities and skills that can be tested by Open Book were discussed in great detail followed by small group discussion and individual choice of abilities/skills relevant to Open Book Examinations in different law subjects.

Seminar on mutual relationship of various systems of Indian thought held at Gorakhpur

In our country, philosophy is not only a way of thought but is a way of life also. Once philosophy becomes only an abstraction or a way of thought it is doomed as has been in the West. This observation was made by Prof. Jaideva Singh, an eminent Indologist and Philosopher, while inaugurating the national seminar on 'Mutual relationship of various systems of Indian thought', organised jointly by the Nagarjuna Buddhist Foundation and the Sanskrit Department of Gorakhpur University.

Stressing the importance of the values of life, Prof. Singh asserted that after every achievement man goes on searching for higher values of life. Philosophy without values is bound to die out, he added. Dwelling on the concept of values he said that 'Dharama', 'Artha' 'Kama', and 'Moksha' were the four values propounded by the Indian thinkers. The 'Artha' and 'Kama', he asserted, had not only been dominating the life in the Western countries but had greatly influenced our own countries. 'Dharma' and 'Moksha' are absolute values of life and should be the main aim of human life.

Discussing the three approaches to the study of philosophy—subjective, objective and absolute—he said that the absolute was the highest stand-point in the study of philosophy. 'Sankhya' and 'Yoga' systems of philosophy failed miserably, he said, because they did not consider the 'abolute' while Jainism and Buddhism were absolute systems. Referring to the great contribution of Bhagwad Gita to the Indian way of life, Prof. Singh said that it has its own wonderful and peculiar way of life, which preaches a detached approach towards the life. 'Karma Mimansa' and 'Shankar Vedanta' took 'Karma' in a narrow sense while Gita book is in much higher sense. Prof. Singh said that science was only objective in outlook and had nothing to do with 'values'. It only creates certain physical comforts. Real philosophy cannot get rid of values and the highest value is 'Dharma'.

Prof. S.P. Nagendra, Pro-Vice-Chancellor while welcoming the guests asserted that though much work had been done on Indian philosophy still much more was required to be done.

More books to be printed under Indo-Soviet plan

A protocol to widen the scope of the Indo-Soviet textbook programme was signed in New Delhi recently. Mr T.N. Chaturvedi, Secretary, Ministry of Education, signed on behalf of the Government of India and Professor N. S. Egorov, Deputy Minister of Higher and Specialized Secondary Education, on behalf of the Soviet Government. This follows the 12th meeting of the Joint Indo-Soviet Textbook Board which ended in New Delhi. Under the protocol, it is proposed to widen the scope of publications under this programme to include books on para-medicine, training for craftsmanship, continuing education, pedagogy and physical education. So far it covered research in basic sciences, technical education, agriculture, medicine and humanities.

The Indo-Soviet textbook programme was started in 1965 to make available to Indian students selected educational books of Soviet origin in low cost editions. The Board has so far brought out 368 books. It has decided to identify at least 50 more books for publication by June 1982. To make low-priced editions of standard university books and reference material of foreign origin available to university students, the Ministry of Education has also been operating such programmes in collaboration with Britain and the USA. The price of such books comes to about one-third to one-fifth of the standard editions.

Kerala minister for amendment of UGC schemes

Mr. Baby John, Kerala Education Minister, expressed his readiness to hold talks with the striking college teachers without changing the basic approach of the government towards the dispute. He said that unless the UGC scheme was amended it could not be implemented by the State Government as demanded by the college teachers. Besides, the Centre would also have to give financial assistance to the State. He pointed out that while implementing the UGC scheme it would be difficult to continue the existing communal reservations in staff selection in private colleges. Other states had implemented the UGC scheme excluding the private colleges. He informed that the government was taking steps to amend the University Act to provide for invigilation in examinations and valuation of answer papers as a part of duty of college teachers.

Geological & Geohydrological studies stressed

The members of the Geologists Association of Bihar have urged the VS Jha University Enquiry Commission to recommend teaching of geology and geohydrology in all the universities of Bihar right from the intermediate stage of education. In a memorandum submitted to the Commission, the Association said that the study of geology and geohydrology was essential for meeting the basic needs of agriculture and mineral-based industries. It has been pointed out that though Bihar was the richest mineral state having forty per cent of the India's mineral wealth, geology was taught in only two universities, viz., Patna and Ranchi while in other states having less potentialities the subject was taught in a number of colleges and universities. The Association demanded the introduction of the subject in all colleges to boost mineral and agricultural production in the state.

Manipur University consolidated

The newly established Manipur University, Imphal, has become a provisional member of the Association of Indian Universities. It has conducted Pre-University, B.T., LL.B. and M.B.B.S. examinations which were hitherto being conducted by the Gauhati University. The post-graduate centre of the Jawaharlal Nehru University located at Imphal is also being transferred to this university. The State Government has made a provision of Rs 2.5 crores in the budget for this university during the Sixth Plan period.

News from Agril. Varsities

Pantnagar University's role as change agent for rural development

Mr Anand Swarup, Vice-Chancellor, Govind Ballabh Pant University of Agriculture and Technology, said in Pantnagar that all categories of research, extension and teaching personnel look upon themselves essentially as change agents performing different functions within a coherent and purposive framework of rural development. In this framework, new and useful knowledge already available has to be passed on to the end users, *i.e.* agriculturists and entrepreneurs, as quickly as possible and, at the same time, extension personnel engaged in this transfer are expected to identify the problems as well as opportunities in the field and feed them to research personnel for finding ways of removing constraints and augmenting the opportunities for socio-economic development.

Educational training is seen as a process by which public and private agencies engaged in supporting the process of rural-development would get the type of manpower required for performing their specific functions. In teaching and training, as in research and extension, the basic orientation is to equip students not only with a broad spectrum of relevant knowledge but also with the capabilities for handling various jobs as practical practitioners.

Mr Swarup said that Pantnagar University is known throughout the country as one of the principal participants in the drama of 'Green Revolution'. Flourishing crops in the fields of millions of farmers, based on seeds of various varieties developed at Pantnagar, are like our old students occupying positions of eminence in public and private organisations, a testimony of the excellence of this day with new challenges, of this institution. However, in a dynamic society faced every day with new challenges, no institution can rest on its oars. To survive with honour, it must go on excelling its past performance with unrelenting determination and highly efficient system of research and development. The Pantnagar University has the will as well as the capability to perform the dynamic role assigned to it by the farmers.

It has evolved many new varieties of wheat, paddy, maize, oil-seeds and pulses which would give higher yields, resist diseases and fit into the most profitable crop rotations. New and valuable plant material for horticultural crops is also available. It has also designs of useful agricultural implements for all categories of farmers and in respect of animal breeding and livestock management signficant findings have emerged from years of research.

Dr. G.V. Srisonka visits HAU

A 3-member Soviet delegation headed by Dr G.V. Srisonka, Director, the Ukrainian Research Institute of Plant Protection visited Haryana Agricultural University to study the genetic resistance of crop plants to pests and diseases and the methodologies used for screening the plants material. The members of the delegation held detailed discussions with the scientists and specialists of the university who are engaged in research activities. The other members of the delegation were Dr V.A. Gontarovski, Head of the Genetic Laboratory, the All-Union Maize Research Institute and Mr M.A. Kosminski, Interpreter, leading economist of the Main Administration of Foreign Relations, the USSR Ministry of Agriculture.

Thai delegation lauds HAU extension work

A 3-member delegation from Thailand visited Haryana Agricultural University recently. The delegation, led by Mr Aroon Sidhipatee, Director, Central Regional Non-Formal Education Centre, Photharam, Ratchaburi, Thailand, came to the university to study the extension and training programmes conducted by H.A.U. Mr Aroon Sidhipatee lauded the transfer of technology programme of the university and said that the extension network evolved by H.A.U. could well be adopted by the other developing countries. He was particularly impressed by the close linkage between the University scientists and the State Department of Agriculture.

New virus isolated at Hissar

Dr O.P. Kadian, a Ph.D. student of the Department of Plant Pathology of Haryana Agricultural University, Hissar has purified for the first time, the virus causing the leaf crinkle virus disease and identified it as a new virus. This leaf crinkle virus disease of Mungbean and Urdbean crops is continuously increasing throughout Haryana causing loss in field upto 95%.

According to Dr J.N. Chand, Head, Deptt. of Plant Pathology, the detailed investigations carried out on this disease by Dr Kadian is an addition to new scientific knowledge in this virus host system which previously was not forthcoming.

ICAR scholarships

The Indian Council of Agricultural Research (ICAR) has decided to expand its programme of scholarships to students from hitherto neglected districts in a bid to boost agricultural development in those areas. The scheme is designed to develop the professional, technical and scientific expertise of students from these areas for research in subject like agriculture, fisheries, animal husbandry and agri-forestry. The council has initially selected 175 such districts situated in hilly, tribal and flood and drought prone areas. The scheme envisages offering at least two scholarships in each district at the undergraduate level and one scholarship at the postgraduate level. The number of scholarships could be doubled if the requisite candidates were available.

In all 2,250 scholarships are sought to be given by 1982-83. The scheme is proposed to be extended to more districts late. Agricultural universities, ICAF research institutes and other institutes recognised by ICAR as having facilities for such training would be closely associated with the programmes under this scheme. One of the essential conditions would be that the candidate is a domicile of the district for at least ten years. After completion of the training the candidate would be expected to serve in the district for at least three years. The value of the scholarship at the undergraduate level is Rs 150 per month with a contingent grant of Rs 600 per annum for fees, books and tours. For the master's degree, the amount is Rs 300 a month, with a contingent grant of Rs 1,500 per year. For the Ph.D. level it would be Rs 400 a month for the first two years and Rs 500 for the third year with a contingent grant of Rs 3,000 per annum.

IDA team visits PAU

A supervision mission of the International Development Agency of the World Bank visited the Punjab Agricultural University to review the progress of the National Agricultural Research Project of the University regarding the development of Kandi (sub-montane) areas of the Punjab. The 3-member mission was headed by Dr L. Hjelm, Vice-Chancellor, Swedish Agricultural University. They met the Vice-Chancellor Dr Amrik Singh Cheema and discussed with him the establishment of a regional research station at Bhatinda and strengthening of research facilities at the existing regional research stations of the University. The mission later visited Hoshiarpur to see the site for a new regional research station of the PAU to be set up at Ballowal Sankhari village. The mission also studied the working of the departments of Soils and Plant Breeding and the College of Agricultural Engineering of the PAU.

Old boys to visit Pakistan Agricultural University

The old Punjab Agricultural College, Lyallpur which was considered to be the best of agricultural institutions of Asia before independence and which has now developed into the University of Agriculture, Faisalabad (Pakistan) is celebrating its Diamond Jubilee. A number of agricultural scientists in India who were old boys from Lyallpur and who are holding eminent positions in agricultural universities and in the Government of India have been invited to participate in these programmes being held at Faisalabad.

According to Dr K. Kirpal Singh, Director, Food Technology, Processing and Marketing at the Punjab Agricultural University, Ludhiana who is the programme co-ordinator for this visit, a group of about 15 old boys will be going to Pakistan. A seminar on "Post-harvest losses in foodgrains, fruits and vegetables" is also being organised on this occasion.

New department created at PAU

The Vice-Chancellor of the Punjab Agricultural University, Dr Amrik Singh Cheema has created a new department in the College of Agriculture. It will be called the Department of Agricultural Meteorology and it will study and forecast weather conditions in relation to crop production and also publicize those forecasts for the benefit of the farmers. Some other developments of academic interest are that the Maharshi Dayanand University, Rohtak has recognised the degree of B.Sc. (Home Science) of the Punjab Agricultural University as equivalent of the corresponding degree awarded by the Maharshi Dayanand University, Rohtak.

Indo-Dutch cooperation in agriculture

HRH Prince Claus of the Netherlands, held discussions with the Union Minister for Agriculture, Rural Reconstruction and Irrigation, Rao Birendra Singh, in New Delhi. He discussed various aspects of closer Indo-Dutch cooperation and collaboration in the field of agriculture development, scientific research, agro industries and fertiliser production. It was agreed that possibilities of setting up fertiliser projects in third world countries may be explored. Rao Birendra Singh apprised Prince Claus of the strides India had made in the field of agriculture and food production. The Dutch leader appreciated India's achievements on food front and said the world did not fully realise what India has achieved in ten years in agriculture.

FAO consultant visits PAU

Mr L.J. Clarke, a consultant in the Food and Agricultural Organisation (FAO), visited the Punjab Agricultural University.

The purpose of his visit was to identify and locate the prototypes of agricultural machinery suitable for Thailand. Mr Clarke had a meeting with Dr S.R. Verma, Dean, of the College of Agricultural Engineering of the University and saw various types of bullock and tractor drawn farm implements which have been developed by the Department of Farm Power & Machinery.

Harvest and post harvest tech workshop at JNKVV

The 8th annual workshop of the All India Coordinated ICAR scheme on studies on harvest and post harvest technology was held at Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur. About fifty delegates from various institutions all over the country participated in it. Dr O.P. Goutam, Director General of the ICAR, was the chief guest at the inaugural session. The objective of the workshop was to evaluate the progress of the work done in past year and to formulate the coordinated technical programme for the ensuing year.

Science & Technology

Fourier analyser system for structural response analysis

With the advent of minicomputer based digital test system the concepts of structural response studies have acquired greater impetus. Consequently testing techniques also have changed from a time domain approach to one of frequency domain approach. Realising the importance of these advances the Structures Division of the National Aeronautical Laboratory, Bangalore, has recently acquired a Fourier Analyser System whose configuration has been carefully chosen to apply the system not only for structural response studies but also to evaluate various aerodynamic signal analyses like gusts, turbulence. etc., and signature analyses of mechanical and machine tool vibration problems.

The basic system has a microprogrammable system computer as the core includes extended arithmetic instructions, dual-channel direct memory access, floating point hardware and writable control stores. The two channel ADC converts analog data to digital by sampling the analog signals at discrete points, then converting each sample into a 12-bit digital word. Each signal can be sampled upto a rate of 100 KHz per channel. The system has a complete fourier software package. The user-written software routines can be added, which can be written in either fortran or assembly language.

The three basic frequency domain techniques for understanding and solving complex dynamic problems are power spectrum, transfer function and coherence function and these form the main function of the basic system. In addition baseband analysis, proportional bandwidth analysis and band selectable fourier analysis are possible. Baseband analysis can be performed from dc to 50 KHz in 18 ranges with constant frequency resolution throughout each range.

In addition to basic features of the system described above modal analysis capability has also been added as a special feature enhancing the capability for the acquisition and analysis of modal data. The system measures accurate transfer function measurements and then operates on a specific set of measurements to identify the natural frequency, damping and modeshape of each of the predominant modes of vibration of the structure under test. It provides a straight-forward, logical approach to the modal parameter identification task. This system combined with excitation techniques like the impulse excitation and band-limited random signals provide significant time and cost savings for the testing and enhances standard of accuracy in modal testing and analysis.

A full-scale wing structure was tested as an example with thirteen impulse excitation points. The dynamic characteristics like natural, frequency, modal damping and modeshapes for the first three principal modes were derived.

Microcomputer development system

The design of microprocessor based systems require microcomputer development system which is useful in a number of ways for the designer. It is used for developing the software programming for system design, evaluation and simulation of system parameters, identification of the requirements of system components, debugging software/hardware etc.

The system developed is an 8-bit microcomputer using Intel 8085A microprocessor, operating at 4MHz. It has 2K RAM and 2K UV-PROM in its memory circuit. A Hex-Key board is used to enter data into the programme momory and data memory locations of the computer. The key board entry is done operating the computer in the programme mode.

The important facility provided in the system is its DMA operation. In this mode of operation, the operator can read or enter the data into a particular memory location, by operating the front panel toggle switches. 16 toggle switches are provided for address selection and 8 for data selection. Controls are provided for address-batch-enable, write, reset, single stop and other functions of the computer. The address and data bases are displayed by LED lamps. The computer can be operated in the single step mode which is very helpful in debugging programmes.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Hunnargikar, Ranjana Shriniwas. Precompact, compact sets and collectively compact operators in convex homologies. Nagpur University.

2. Shrivastava, Kiran J. Contributions to the theory of convergence structures. Nagpur University.

3. Srivastava, Reeta. Compressible boundary layers. University of Roorkee.

Statistics

1. Nain, Ram Bharose. Correlated random walks. University of Delhi.

Physics

1. Gupta, G.P. Scattering of charged particles from atomic and molecular systems. University of Roorkee.

2. Padam, Gurusharan Kaur. Study of oxygen radicals, electron/hole and impurity centers in CdS. University of Delhi.

3. Saxena, Kailash Narayan. Empirical and phenomenological interpretation of some important physical properties of binary intermetallic compounds and semiconductors. including X-ray absorption spectra. University of Indore.

4. Sinha, Hukum Chanda. Preparation and electrical characteristics of conducting and semi-insulating polymer films. University of Saugar.

Chemistry

1. Bedi, Asha Lata. Studies in the synthesis of juvenile hormone analogues. Panjab University.

2. De, Tapan Kumar. Studies on the metal complexes of acid imides and amino acids. University of Roorkee.

3. Farooqui, M.A. Physico-chemical and analytical studies of some metal complexes of substituted hydroxamic acids. University of Indore.

4. Gangrade, Harish Kumar. Studies in Indian vegetable oils. University of Indore.

5. Gupta, Bina. Studies on the reducation of some nitrogen containing compounds and liquid—liquid extraction of some metal complexes with nitrogen ligands. University of Roorkee.

6. Lal, Surya Narain. Electro-kinetic studies through thorium oxide membranes. University of Gorakhpur.

7. Manjit Singh. Physico-chemical studies on phosphogypsum for use in building materials. University of Roorkee

8. Mishra, Lallan. Studies on pesticidal organic compounds and their metal complexes. University of Gorakhpur.

9. Siddiqui, M.M. Physico-chemical studies of some mixed ligand thiocyanate complexes. University of Roorkee.

10. Singh, Jai Pal. Studies on extraction of some metals with carboxylic acids. University of Roorkee.

11. Venkata Rama Sastry, Rallabhandi. Physico-chemical studies on some seed proteins. University of Delhi.

Earth Sciences

1. Bala Kotaiah, G. Studies on petrology and geochemistry of amphibolites and anorthosites West of Kannegiri Hills, Khammam District. Andhra Pradesh. Osmania University.

2. Sinvhal, Amita. Application of seismic reflection data to discriminate subsurface lithostratigraphy. University of Roorkee.

Engineering & Technology

1. Agarwal, C.P. Heat transfer studies in a vertical tube of closed loop thermosiphon. University of Roorkee.

2. Gupta, Hariom. Performance optimization of electronic circuits. University of Roorkee.

3. Jain, R.K. Electro-magnetic field analysis of electrical machines by finite method. University of Roorkee.

4. Jain, Vijay Kumar. An analysis of ECM process for anode shape prediction University of Roorkee.

5. Khanduja, S.R. Role of deformability index in the evaluation and control of properties of clay bonded moulding sands. University of Roorkee.

6. Misra, R.B. Graph theory application for reliability evaluation and optimization. University of Roorkee.

7. Sarkar, Sankar. A study of second harmonic influence on single domain resonant mode operations of Gunn diode in X-bands waveguide Gunn oscillator. University of Roorkee.

8. Verma, S.K. Permutation properties of signal processing transforms. University of Roorkee.

BIOLOGICAL SCIENCES

Biochemistry

1. Basarkar, Pramod Wamanrao. Investigation on hypocholesterolmic action of compounds possessing vitamin B like activity. Nagpur Universtiy.

2. Mehta, Saroj. Biological utilization of agro-industrial wastes : Castor, Ricinus communis, meal proteins. Panjab University.

Botany

1. Gurmeet Kaur. An ecological study of two common weeds viz. Echinocloa colona (L) Link and Lathyrus aphaca Linn. of rice and wheat fields of Gorakhpur. University of Gorakhpur.

2. Verma, Sudershan Kumar. Cytotaxonomic studies on the North West Himalayan mosses. Panjab University.

Zoology

1. Gupta, Renuka. Sterol transport in certain insects with special reference to Periplaneta americana L. University of Delhi.

2. Gurdev Singh. Ecology of waste waters of Chandigarh. Panjab University.

3. Kalia, Deepak Chander. Taxonomical and histochemical studies on nematodes of some wild mammals in India. Panjab University.

4. Kaul, Neerja. Studies on the feeding behaviour and physiology of digestion in the ciliate, Stylonychia mytilus Ehrenberg. University of Delhi.

5. Sahi, Komal. Mutagenic evaluation of certain carcinogens on the rodent haemopoitic tissues. Panjab University.

6. Saxena, Krishna. Studies on the oriental species of the genus Coccygomimus saussure (Hymenoptera : Ichneumonidae : Ephialtinae). University of Delhi.

7. Srivastava, Ajai Kumar. Studies of the endocrine glands related to serum calcium regulation in house shrew, Suncus murinus. University of Gorakhpur.

Medical Sciences

1. Ajeshwar Pal Singh. Studies on drug metabolism in patients with liver diseases with special reference to idiopathic portal hypertension. Panjab University.

2. Kapoor, Ranju. Regulation of glycolysis in Mycobacteria. University of Delhi.

3. Patel, Shashikant Ramanlal. Some aspects of the pharmacology of goat intestine. M.S. University of Baroda.

Agriculture

1. Deshmukh, Prabhakra Anandrao. Studies on the response of chrysanthemum, Chrysanthemum indicum L. to varying levels of plant densities in relation to nitrogen and potash fertilization and verictal responses to different plant densities. Marathwada Agricultural University.

Veterinary Science

1. Vijay Shankar. Studies on serum transferrins of cattle and buffaloes. Panjab University.

ADDITIONS TO AIU LIBRARY

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Fedida, Sam and Malik, Rex. *Viewdata revolution.* London, Associated Business Press, 1979. 186p.

Gray, H.L. *Change and management in schools.* Nafferton, Studies in Education, n.d. 81p.

——————. *Management in education : Working papers in the social psychology of educational institutions.* Nafferton, Studies in Education, 1980. 178p.

——————. *School as an organisation.* Nafferton, Studies in Education, n.d. 83p.

Hopkins, Adam. *School debate.* Harmondsworth, Penguin (c 1978) 233p.

Johnson, Richard E. *Juvenile delinquency and its origins : An integrated theoretical approach.* Cambridge, University Press, 1979, x, 182p.

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Mysore State Seminar on Educational Planning and Administration, Bangalore, 1969. *Report of the Mysore State seminar on educational planning and administration, Bangalore, 1969.* Delhi, Asian Institute of Educational Planning and Administration, 1970. 58p.

National Staff College for Educational Planners from Administrators, Delhi. *Educational administration in Maharashtra : A survey report, 1977.* Delhi, Author, 1977. vii, 117p.

——————. *Educational administration in Nagaland : A survey report, 1978.* Delhi, Author, 1978. vii, 62p.

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Rajasthan State Seminar on Educational Planning and Administration, Jaipur, 1970. *Report of the Rajasthan State seminar on educational planning and administration, Jaipur, 1970.* Delhi, National Staff College for Educational Planners and Administrators, 1972. 96p.

Shukla, P.D. *Educational administration in Lakshadweep : A survey report, 1975.* Delhi, National Staff College for Educational Planners and Administrators, 1976. 44p.

——————. *Educational administration in Pondicherry: A survey report, 1975.* Delhi, National Staff College for Educational Planners and Administrators, 1975. 65p.

Simon, Herbert Alexander. *Models of thought.* New Haven, Yale University Press. 1979. xviii, 524p.

Sockett, Hugh, ed. *Accountability in the English educational system.* London, Hodder and Stoughton (c 1980) 117p.

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Uttar Pradesh Seminar on Educational Planning and Administration, Allahabad, *1971. Report of the Uttar Pradesh State seminar on educational planning and administration, Allahabad, 1971.* Delhi, National Staff College for Educational Planners and Administrators, 1973. 75p.

Veda Prakasa. *Extending educational opportunity in Sikkim: A report on the state's school system with special reference to its administration.* Delhi, National Staff College for Educational Planners and Administrators, 1976. 106p.

Walsh, John E. *Inter-cultural education in the community of man.* Honolulu, University Press of Hawaii (c 1973) xi, 225p.

West Bengal State Seminar on Educational Planning and Administration, Calcutta, 1969. *Report of the West Bengal State seminar on educational planning and administration, Calcutta, 1969.* Delhi, National Staff College for Educational Planners and Administrators, 1972. 70p.

White, Graham and Mufti, Rashid, ed. *Understanding socialisation.* Nafferton, Studies in Education, 1979. 154p.

Wilkins, Elizabeth J. *Elements of social science.* Ed 2. London, Macdonald & Evans, 1979. x, 147p.

Wilson, John. *Philosophy and practical education.* London, Routledge and Kegan Paul, 1977. 130p.

Reforms in Examination System

(*Continued from page 156*)

demands that the developmental processes in modern India are likely to throw up in the near and distant future. There is need to restructure the courses at the University level so as to make them application oriented. Surveys of man-power and other needs of each area with reference to developmental projects planned for the area, futuristic studies based on developmental needs would form a sound basis for the evolution of suitable curricula geared to rapid multi-aided development of our country.

Vocationalisation

There has been increasing pressure from all sections of public opinion in recent years that vocationalisation should become an integral part of education and that education should become job-oriented. Vocational Courses have been introduced in some parts of the country at the plus two stages. We have made a beginning in our State by introducing vocational courses in selected Junior Colleges in the following fields in 1979-80:

1. Engineering and Technology
2. Agriculture, Animal Husbandry and Home Science
3. Pharmacy.

In 1980-81, six more Vocational Courses in the fields of medicine, sericulture, fruit preservation and processing, and catering and food technology were introduced. The Government of Andhra Pradesh proposes to expand Vocational Courses in its higher Secondary Schools. Such courses would help in relieving the pressure on higher education and at the same time provide middle-level technicians needed in all fields of developmental activity. ☐

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY

BOMBAY 400020

Applications are invited on prescribed forms available from the University office, Bombay, on payment of Rs. 5/- by M.O. or in cash for the following posts (one post each) to be filled in at the Premlila Vithaldas Polytechnic, located at the Juhu Campus of the University, so as to reach the undersigned before **April 25, 1981**. The medium of teaching is English.

A. HEADS OF DEPARTMENTS

1. **Pharmacy** (M. Pharm. Degree or its equivalent essential)
2. **Clinical Pathology & Microbiology** : (M.D. Pathology **or** M.B.B.S. with Diploma in Pathology and Bacteriology preferred)
3. **Food Technology** : (At least First or Second Class Master's Degree in Food Technology)
4. **Dress Making & Fashion Coordination** : (Graduate preferably in Fine Arts with Diploma in Fashion Design & Sewing with minimum two years teaching and administrative experience).

Qualifications

(a) Minimum Second Class Master's Degree in the subject concerned.

(b) Either a Research Degree of the Doctorate standard or an outstanding competence assessed from the review of published research carried out during the five years preceding the date of application or the published literary or scientific work during the said period.

(c) Teaching and administrative experience of about five years in an institution offering applied courses like those of a Polytechnic.

Note

(i) Conditions (b) and (c) above may be relaxed in case of persons with prescribed qualifications are not available or not considered suitable for the post.

(ii) For post No. 4 Graduate with specialised training in India or abroad in dress making and fashion co-ordination with at least two years experience in teaching and administration will be considered.

Salary Scale

Rs. 1000-50-1500+admissible allowances.

B. LECTURERS

1. **Lecturer in Food Technology** : At least Second Class M.Sc. (Tech.) with Food Technology as special subject. Candidate with B.Sc. (Tech.) with first class may also apply.

Salary Scale

Rs. 680-40-1000-50-1250 + admissible allowances

2. **Lecturer in Fine Arts** : At least Master's Degree in Fine Arts with some experience — specialisation in Design & Fashion Illustration will be preferred.

3. **Lecturer in Chemistry** : Minimum Second Class Master's Degree in the subject with two years experience.

4. **Lecturer in Textiles** : M.Sc. (Home Science) with specialisation in Clothing & Textiles.

5. **Lecturer in Commerce** : Minimum Second Class Master's Degree in the subject with two years teaching experience.

Salary Scale : Post 2 to 5

Rs. 600-30-750-950 + admissible allowances.

C. INSTRUCTORS

1. **Instructor in Sewing/Drafting/Cutting** : Diploma in Dress Making & Fashion Co-ordination or its equivalent with some experience. The qualification requirements relaxable in case of persons with at least seven years experience or persons who have achieved excellence in the field.

2. **Instructor for Ancillary Crafts** (Weaving /Dyeing/Printing) : M. Sc. (Home Science) with specialisation in Clothing & Textiles or Diploma in Textile Design/Printing and Dyeing from a recognised institution with two years experience.

Salary Scale

Rs. 500-20-700-25-900 + admissible allowances.

Note

(a) Only suitable candidates will be called for interview, (b) Other things being equal, preference will be given to candidates from Scheduled Castes/Tribes/Other Backward Communities, (c) Higher starting salary may be considered in exceptional cases for persons with higher qualifications and long experience.

(Smt.) Kamalini H. Bhansali
REGISTRAR

UNIVERSITY OF POONA

Invites Applications For

STATE BANK OF INDIA CHAIR IN ENERGY STUDIES

Main function of the Chair is to undertake teaching and research with a heavy emphasis on the development of the rural areas through exploitation of unutilised natural resources so as to reduce reliance on conventional energy sources. The Chair is of Inter-Disciplinary nature.

We are looking for a senior person with professional experience in the field of harnessing natural energy resources. He will be a Professor and may be offered a basic pay upto Rs. 3,000/- depending on his qualifications, experience and eminence. He will be appointed initially on a suitable tenure which might be extended, depending on his achievements. The person will have to establish and organise relevant research activities in the field of energy independently and also in collaboration with research groups in Institutions/Universities and Industries. In addition he will carry out all the functions expected of the Chair.

Persons interested may apply on plain paper so as to reach the Registrar, University of Poona, Ganeshkhind, Pune 411 007 on or before **10th April, 1981.**

REGISTRAR

UNIVERSITY OF POONA

Applications in the prescribed form are invited for the follwing posts on or before **10th April, 1981.**

1. Professor of Physics : One post
2. Readers in Physics : Two posts.

Qualifications

(i) General (ii) Minimum

(iii) Job Requirements and Additional Qualifications.

1. **Professor**
   - (i) Must be scholar of eminence, must have to his credit research work of independent merit. Must possess fairly long experience of teaching of Post-Graduate classes and guiding advance research in the respective subjects.
   - (ii) As prescribed by the University for recognition as Post-Graduate Teacher (By Research).
2. **Reader**
   - (i) Must possess fairly long experience of Post-Graduate classes and guiding research in the respective subjects.
   - (ii) As prescribed by the University for recognition as Post-Graduate Teacher (By Rerearch).

(1) Professor of Physics

Job Requirements and Additional Qualifications

The Department of Physics, which has infrastructure for study of Materials in surface, thin-film, and in bulk form, has been granted the UGC programme of Special Assistance in Materials Science. The research programme in the area of electron emissive and low work function materials and strengthening of teaching and training programme in materials science will be undertaken under this Special Assistance.

We are looking for a Senior experimental material Scientist with experience and capacity to undertake research responsibilities alongwith a

Project Coordinator. The person should have a wide experience in various experimental techniques related with study of materials from initiation of usage point of view. Must have attracted funds and carried out independent major research schemes in this field. The person needs to have several years of teaching experience. We are looking for a person who can co-ordinate and initiate a group of teachers/scientists to do high quality research work.

(2) Readers

Two posts: One in Theory and One in Materials Science.

Post 1: Materials Science.

Job requirements and Additional Qualifications

The selected person will be linked with the above mentioned Special Assistance programme and should have experience in carrying out independent research work in study of materials. The person having experimental work experience in one of the following fields will be given preference:

1. Synthesis of materials
2. Ion Implantation techniques
3. Positron Annihilation techniques
4. Experimental surface physics.

The person should also have several years of experience in teaching and laboratory work at a postgraduate level. The person should have attracted funds and carrying out research schemes.

Post 2: Theoretical Physicist.

Job Requirements and Additional Qualifications

The selected person will have to look after the theoretical side connected with the Special Assistance programme. The person should have experience in carrying out independent research work from the solid state theory point of view and should have acknowledged published research work in the field of Materials Science. The person should also have several years of experience in teaching and laboratory work at a postgraduate level. The person should be able to attract funds and carrying out independent research schemes.

Scales of Pay

1. **Professor:** Rs. 1500-60-1800-100-2000-125/2-2500
2. **Reader :** Rs. 1200-50-1300-60-1900

plus allowances admissible under University rules.

Age Limit

Professor below the age of 50 years and Readers below the age of 45 years.

The prescribed forms and detailed information available on request with (1) a self-addressed envelope (23 cm x 10 cm) bearing postal stamps worth Re. 1 Ps. 25 and (2) Rs. Ten in cash or by a postal order drawn in the name of the Registrar, separately, for each post.

(a) Conditions relaxable/higher starting salary admissible in exceptionally capable candidates.

S.P. Bhosale
REGISTRAR

UTKAL UNIVERSITY

VANI VIHAR, BHUBANESWAR-4

Advertisement No. Estt. 1/886-C/6401/81
Dated 5.3.81

Wanted One Lecturer in English (Leave vacancy)—Two Lecturers in Botany—Temporary—for one academic session but likely to continue in the respective Post Graduate Departments of the University in the U.G.C. Scales of Pay possessing the U.G.C. and University prescribed qualifications. Last date for receipt of applications is **31.3.1981**.

Posts	**Specialisation**
English-Lecturer	
Botany-Lecturer	Any specialisations. But not more than one from the same groups of specialisation will be selected.

Prescribed application forms in seven copies for the above posts and other details for these posts can be had from the Registrar of the University in person on payment of Rs. 7.49 paise or by post on receipt of a crossed Indian Postal Order for Rs. 9/- payable to the Finance Officer, Utkal University, Vani Vihar, Bhubaneswar-751004.

S.K. Ray
REGISTRAR

HIMACHAL PRADESH UNIVERSITY

RECRUITMENT BRANCH

Advertisement No. 2/81

Applications on a plain paper (duly typed in the proforma given below) under registered cover, alongwith a crossed Indian Postal Order of Rs. 10/- (Rs. 5/- for S.C./S.T.) payable to the Finance Officer, H.P. University, Simla-171005, are invited for the post of LIBRARIAN (leave vacancy likely to be made permanent) so as to reach the undersigned on or before **4th April, 1981**.

Essential Qualifications

(In the scale of Rs. 1500-2500 in case of scholar of standing) :

(a) Good academic record with first or high second class Master's degree in subject other than Library Science with a Doctorate degree or equivalent published work of high standard and preferably with experience of guiding research with knowledge/experience of library services and management.

(b) At least 10 years experience of teaching postgraduate classes and research or of research in an independent capacity in an organisation of higher learning and research or in a responsible post in a library for advanced students and research workers.

For others in the scale of Rs. 1500-2000

A doctorate degree in Library Science with three years experience as a Deputy Librarian in a University or a similar library.

OR

Master's degree in any faculty as also a Master's Degree in library science with seven years' experience as Deputy Librarian in a university or a similar library.

OR

Master's Degree in Library Science in the First division with seven years' experience as Deputy Librarian in a University/or a similar library.

Candidates already in service should send their applications through proper channel. An advance copy may, however, be sent direct.

Candidates called for interview will have to come to the place of the interview at their own expenses and bring with them their original research papers, degrees and certificates etc. for verification.

The university reserves the right to negotiate with suitable person or persons, if necessary, who may not have applied formally.

The university also reserves the right to fill up or not to fill up the post or to call only selected candidates for interview.

CANDIDATES are required to give the following PARTICULARS :

1. Name of the post :
2. Name of the applicant (in block letters) :
3. Date of birth :
4. Address for correspondence :
5. Province of domicile :
6. Academic qualifications : giving division & percentage of marks in each examination from high school onwards : (Attach attested copies of all the certificates/degrees)
7. Teaching experience with detail of : post held, name of institution/employer, period with date & last pay drawn :
8. Research work & experience of research guidance, number of students guided in each programme :
9. Papers/Books/Articles published, if any (enclose the list) :
10. Minimum salary acceptable :
11. I.P.O. No(s)———date——— (MONEY ORDERS OR CHEQUES ARE NOT ACCEPTABLE)
12. Any other information worth mentioning, not covered above :
13. Signature of the candidate with date————.

Note

Applications not in conformity with the above requirements & applications received after the due date will not be entertained, and no correspondence will be entertained in this regard.

Persons who have already applied for the above mentioned post in response to our earlier advertisements No. 1/80 dated **17.1.1980** and No. 7/80 dated **6.8.1980** need not to apply again. However, they may send additional informations, if any.

A.R. Chauhan
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY

KANPUR

Advertisement No. 40/80

Applications are invited for one post of Deputy Registrar and two posts of Assistant Registrar in the scale of pay of Rs. 1100-50-1600 and Rs. 700-40-900-EB-40-1100-50-1300 respectively at this Institute. **Out of these posts one post of Assistant Registrar in reserved for Scheduled Caste/Scheduled Tribe candidate.**

Qualifications and Experience

Deputy Registrar

Essential

(1) At least High Second Class Degree in Arts, Science, Commerce, Engineering, Technology or Business Administration.

(2) Considerable administrative experience (12 years or more) in a position under Government University/large educational Institution or business organization of repute.

(3) Must have experience in the conduct of examinations/dealing with administrative procedures/Recruitment etc.

(4) Experience in handling agenda, minutes and procedure of meetings.

Desirable

Capacity to develop corporate life within residential institutions and should have vide sympathy with students.

Assistant Registrar

Essential

(a) Good degree in Arts, Science, Commerce or Business Management.

(2) At least 10 years' experience in a responsible position under Government/University or in a large Educational Institution or business organization of repute.

(3) Must have good knowledge of procedure of general administration or accounting of cash and other transactions preferably both and be able to draft reports and minutes of conferences.

Desirable

Experience of supervision of examination work, Assessment Personnel Recruitment/Service rules, student welfare work, proved capacity to understand students and their problems.

The requirement of experience may be relaxed in case of candidates with excellent academic record and/or training in management.

Posts are permanent and carry retirement benefits in the shape of CPF Scheme or CPF-cum-Gratuity Scheme or GPF-cum-Pension-cum-Gratuity Scheme as may be opted according to rules. The age of retirement is 60 years. During the first year, the appointment will be on probation. Besides pay, posts carry allowances according to the Institute rules, which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare from the place of duty to Kanpur and back by the shortest route.

Applications must be made on prescribed form obtainable free of charge from the Assistant Registrar (Rect. & Asmt.), Room No. 483, Recruitment Section, Faculty Building of the Institute by sending a self addressed unstamped envelope of 25 cm x 10 cm size. Application should be accompanied by a crossed Indian Postal Order for Rs. 7.50 (Re. 1.87 for SC/ST candidates).

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office , Kanpur-208016 (India) on or before **March 31, 1981.**

Post Graduate School of Continuing Technological Education

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

Hyderabad-500 488

External Registration for M.S. and Ph.D. Degree in 1981

The Post Graduate School invites applications for External Registration for M.S. and Ph.D. Degree in the following areas of faculties:

M.S. : Civil Engineering;
Mechanical Engineering;
Electrical Engineering;
Electronics and Telecommunication Engineering.

Ph D. : Civil Engineering;
Mechanical Engineering;
Electrical Engineering;
Electronics and Telecommunication Engineering;
Mathematics, Physics and Chemistry } (in the Applied fields only)

ELIGIBILITY

For M.S

A candidate must have passed a B. Tech. Examination in concerned faculty of this University or an examination recognised as equivalent thereto, and must have been working at least for one year in Scientific Institution/Laboratories/Research & Development Organisations/Industrial Establishments/Government Departments engaged in technology based activities.

For Ph.D.

A candidate must have passed the Master's Degree of this University in the concerned discipline with not less than 50 per cent marks in the aggregate of Master's Degree Examination, M.B.A., with basic Engineering Degree or an Examination recognised by the University as equivalent thereto.

He shall be working in a well equipped Scientific Institution/Scientific Laboratories/R & D Organisations/Industrial Establishments/Government Departments engaged in Scientific and Technical activities.

Application form and information to candidates can be had on requisition addressed to Director, Post Graduate School of Continuing Technological Education, Jawaharlal Nehru Technological University, Hyderabad-488 accompanied by a crossed draft, on any scheduled Bank, payable at Hyderabad (issued after the date of notification) for Rs. 10/-, drawn in favour of the REGISTRAR, JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD, and enclosing a self addressed envelope (25 cms x 10 cms) bearing stamps worth Re. 1.50 ps. In the requisition, the particular faculty in which registration is sought should be specified.

Sales of applications will commence from	16.3.1981
Last date for sale of applications	13.4.1981
Last date for receipt of applications by post or in person	20.4.1981

REGISTRAR

UNIVERSITY OF JABALPUR

Advertisement No. Estt /81/7

Dt. 24th Feb., 1981

Applications are invited on the prescribed application form (in eight copies) obtainable on payment of Rs. 5/- by Indian Postal Order from the undersigned, for the following posts, viz :

1. **Professors** : One each for History & Ancient Indian History and Chemistry in the scale of pay of Rs. 1500-60-1800-100-2000-125/2-2500.
2. **Readers** : Two for Sanskrit, Pali & Prakrit and one for Physics, Political Science and Philosophy in the scale of pay of Rs. 1200-5-1300-60-190).
3. **Lecturers** : One each for Mathematics, Sociology and Vedic Studies (in the department of Sanskrit, Pali & Prakrit) in the scale of pay of Rs. 700-40-1100-50-1600.

Essential Minimum Qualifications

1. **For Professors** : An eminent Scholar with published work of high quality actively engaged in research. Ten years experience of Teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding Scholar with established reputation who has made significant contribution to knowledge.

2. **For Readers**: Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) rese-

arch or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years' experience of teaching and/or research provided that atleast three of these years were as lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding research work.

3. **For Lecturers:** (a) A Doctor's Degree or research work of an equally high standard; and
   (b) Consistently good academic record with 1st or high 2nd Class (B in the seven point scale) Master's Degree a relevant subject or an equivalent degree of a foreign University.

Having regard to the need for developing inter-disciplinary programme, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his Thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's Degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M. Phil or equivalent Degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's Degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation

1. For the purpose of determining high second class, the mid-point between the minimum percentage of marks fixed by a University for award of second division and first division may be taken.
2. For determining consistently good academic record, a candidate should either have an average 55% of the two examinations prior to master's degree (irrespective of the marks obtained in any of the two examinations) or 50% marks in each of the two examinations separately.

N B.

1. The requirement regarding minimum percentage of marks shall be relaxed upto 5% in case of Scheduled Caste/Scheduled Tribe candidates.
2. The posts of Readers in Sanskrit, Physics and Philosophy and Lecturers in Mathematics, Sociology and Vedic Studies are temporary for the present.
3. For the post of Lecturer in Vedic Studies, other things being equal, preference will be given to the candidates who are physically handicapped.

Desirable Qualifications

(a) **For Readers in Sanskrit** :- Out of the two posts of Reader in Sanskrit, for one post knowledge of Pali and Prakrit and for the other Vyakarana/Sahitya will be desirable.

(b) **For Reader in Physics** :- The post is meant for experimental Solid States Physicist with specialization in Charge Storage and Transport properties in Solids' and Semiconducting properties of Organic Solids. The candidate is expected to be well-versed with the recent advances in these fields.

(c) **For Reader in Political Science**
Field of Indian Government and Politics or specialisation in Public Administration or Political Thought.

(d) **For Reader in Philosophy** :- Philosophy of Religion or Moral Philosophy.

(e) **For Lecturer in Mathematics**
Specialization in Fourier Analysis, Numerical Analysis, Spline Theory Awareness of Computer Programming and usage.

(f) **Lecturer in Sociology** : The applicant should be well qualified in General Sociology and Social Changes and in addition, should be well versed in atleast two of the following branches:
Urban Sociology, Indian Society and Culture, Social & Cultural Anthropology and Political Sociology.

Names of eminent persons distinguished in Scholarships who do not apply may also be considered for selection.

The candidates in their applications should also give details of their specialization, if any. Canvassing in any form or on behalf of the candidates will be treated as disqualification.

Knowledge of Hindi will be desirable for all the posts.

The applications on the prescribed form (in 8 copies) duly filled in along with the information regarding the proof of date of birth and past experience accompanied with attested true copies of certificates, testimonials and Crossed Indian Postal Order of the value of Rs. 15/- for Professor's post, Rs. 10/- for Reader's post and Rs. 8/- for the post of Lecturer, payable to the Registrar, University of Jabalpur, should reach here not later than **31-3-1981**. The candidates already in employment at present should send their applications through proper channel. Incomplete applications and applications received after the prescribed date shall not be considered.

The candidates who desire to get the application forms by registered post should send an additional amount of Rs. 3/- by Crossed Indian Postal Order for postal expenses otherwise all application forms would be sent under certificate of posting. The candidates should also send address written envelopes of the size 11" x 5", for sending application forms by post to them.

The candidates who had applied earlier for any of the above posts should apply afresh in the prescribed application forms.

Except in the cases of application forms handed over in person in the Office of the Registrar, University of Jabalpur, all other application forms should be sent by Registered Post.

R.N. Tripathi
REGISTRAR

BHOPAL UNIVERSITY, BHOPAL

Advertisement No. 1/Estt/81

Applications in the prescribed form (obtainable free by sending a self addressed envelope of 24×12 cms size bearing stamps worth 50 paise) are invited for the following posts in the scales of pay mentioned against each with the benefits of allowances as admissible under the University Rules:

Post	Deptt.	No. of Posts	Pay scale	Relevant Subject in which Master's Degree is required	Specialisation
Professor	Microbiology in the School of Social Sciences	1	1500-60-1800-100-2000-125/2-2500	M.Sc. (Microbiology) or M Sc. Bio Science (Life Sciences) with Microbiology/Bio-Chemistry/ Life Science	Ph.D. in any branch of Microbiology.
Reader	-do-	1	1200-50-1300-60-1900		
Lecturer	-do-	2	700-40-1100-50-1600		
Reader	Bio Sciences	1	1200-50-1300-60-1900	Bio Chemistry/ Botany/Zoology/Life Science	Bio Chemistry/ Ecology/ Instrumentation

1	2	3	4	5	6
Lecturer	Bio Sciences	1	700-40-1100-50-1600		Limnology/Plant Physiology/Plant Growth) and Development with growth regulation.
Senior Scientific Officer	Instrumentation Centre	1	1100-50-1600	IInd class Degree in Engineering or Science (Physics with specialisation in Electronics)	
Professor	Physics	1	1500-60-1800-100-2000-125/2 2500	Physics.	

Qualifications

1) Professor: An eminent Scholar with published work of high standard, actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at Doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

(2) **Reader**

Good academic record with doctoral degree or equivalent published work. Evidence of being actively engaged in:

i) Research, or

ii) Innovation in teaching methods, or

iii) Production of teaching materials.

About five years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding research work.

(3) **Lecturer**

(a) A Doctor's degree or research work of an equally high standard; and

(b) Consistently good academic record with 1st or high 2nd class (B. in seven point scale) Masters' degree in a relevant subject or an equivalent degree of a foreign University.

Having regard to the need for developing interdisciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if Selection Committee is of the view that the research work of a candidate as evident from his thesis or from his published work is of a very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (Weightage being given to M. Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's Degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation

1. For the purpose of determining high second class, the mid point between the maximum percentage of marks fixed by a University for award of second division and first division may be taken.

2. For determining consistently good academic record, a candidate should either have an average 55% of the two examinations prior to master's degree (irrespective of the marks obtained in any of the two examinations) or 50% marks in each of the two examinations separately.

(1) **Senior Scientific Officer**

Essential—At least IInd class Degree in Engineering or Science (Physics with specialisation in Electronics) with 5 years experience in R&D of instruments or in operation/repair and maintenance of modern Instruments.

Relaxation : In the case of Internal Candidates with significant contribution in repair and maintenance of modern Instruments, the above may be relaxed.

2. Good working knowledge of Hindi will also be considered as an additional qualification.

Age should not be more than 50 years as on **1.1.1981.**

Preference will be given to candidates belonging to scheduled castes, scheduled tribes, physically handicapped persons and other backward classes.

Qualifications and age may be relaxed by the Executive Council on the recommendation of Selection-Committee in the cases of Scheduled Castes and Scheduled Tribes candidates and also of those who are otherwise found suitable.

The candidates must mention in each case the branch of their specialisation and show their qualifications from Matriculation upwards indicating in each case the marks/percentage of marks/division/grade and the subjects taken.

Application should be accompanied with a crossed Indian Postal Order of Rs 15/- for the post of Professor, Rs 10/- for the post of Reader, Senior Scientific Officer and Rs. 5/- for the post of Lecturer in favour of the Registrar, Bhopal University, Bhopal as application fees. The appointment will be made in accordance with the University Rules and on probation for a period of two years in the first instance.

Persons already in service must apply through proper channel. They may send an advance copy of their application within the due date and should bring a No objection certificate from their employer when called for interview.

Candidates selected for interview will be required to travel at their own expenses.

Application in the prescribed form should reach the undersigned on or before **28-3-81.**

S. YUSUF ALI
ACTING REGISTRAR

CENTRAL INSTITUTE OF ENGLISH & FOREIGN LANGUAGES

Hyderabad-500 007

Advt. No. IV/81

APPLICATIONS on the prescribed form together with the application fee are invited for the following posts in the institute service so as to reach the Registrar on or before **31-3-1981.**

I. PROFESSOR/SENIOR FELLOW

(1) Department of English Literature, (2) Department of Radio, T.V. & Cinematography, (3) Regional Centre Lucknow/Shillong, (4) Department of German, (5) Department of Russian.

Pay Scale

Rs. 1500-60-1800-100-2000-125/2-2500.

Qualifications : Essential

First or High Second Class Master's Degree in the subject concerned or an allied subject.* An eminent Scholar with a doctor's degree or published work of high quality, actively engaged in research. 10 years' experience of teaching and/or research. Experience of guiding research at doctoral level OR An outstanding Scholar with established reputation who has made significant contribution to knowledge.

*Subject concerned or allied subject : Post No. (1) & (3) English. Post No. (2) English or Mass Communication or Mass Communication Arts with high level competence in English. Post No. (4) German. Post No. (5) Russian.

Desirable

For Post No. (1) (i) Specialisation in Stylistics, or Modern English Literature and Criticism, or Aesthetics. (ii) Special interest in English Language Teaching Programmes. For Post No. (2) Knowledge of Broadcasting media and experience of writing and producing Radio/T.V. programmes. Post Nos. (3), (4) and (5) experience in teacher training materials production and extension work in the subject concerned.

II. READERS/FELLOWS

(1) Department of Methods. (2) Department of Materials Production. (3) Department of Extension Services. (4) Department of Correspondence Courses. (5) Department of Radio, T.V. & Cinematography. (6) Department of German. (7) Department of French.

Pay Scale

Rs. 1200-50-1300-60-1900.

Qualifications : Essential

(a) At least a Second Class Master's Degree in the subject* concerned or an allied subject. Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods, or (iii) production of teaching materials, or (iv), teacher training and extension work at secondary/college level. (b) About 5 years' experience of teaching and/or research, with at least three years' experience as lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

*Subject concerned or allied subject. Post No. 1 to 5 English. Post No. 6 German. Post No. 7 French.

Desirable

Post No. 1 to 4 (i) Specialised training in the teaching of English. (ii) Experience of writing, producing and evaluating teaching materials. Post No. 5 (i) Specialised training in teaching through Mass Media. (ii) Knowledge of Broadcasting media and experience of writing and producing Radio/T.V. Programmes. Post Nos. 6 & 7 (i) Specialised training in the teaching of the subject concerned; (ii) Experience of writing and producing instructional materials and/or training in translation and interpretation; (iii) High level competence in English.

III. LECTURERS/ASSOCIATE FELLOWS

(1) Department of Evaluation. (2) Department of Radio, T.V. & Cinematography. (3) Regional Centre Shillong/Lucknow. (4) Department of German. (5) Department of Russian. (6) Department of French.

Pay Scale

Rs. 700-40-1100-50-1600.

Qualifications : Essential

(a) Consistently good academic record with first or high second class (B in the 7-point scale) Master's Degree in the subject concerned or in an allied subject* (or an equivalent degree of a foreign university). (b) A doctor's degree or research work of an equally high standard.

Desirable

For Posts 1 & 3 : A Post-graduate degree or diploma in English Language Teaching, English Studies and experience of producing teaching materials in English and organising ELT programmes. For Post No. 2: Specialised training in the teaching of English through Mass Media/Radio/T.V. For Posts No. 4 to 6 : Experience of teaching and producing materials in the subject concerned.

*Subjects concerned or allied subject : Posts 1 to 3—English, Post No. 4—German, Post No. 5—Russian, Post No. 6—French.

Provided that any of the qualifications prescribed in (a) above may be relaxed in the case of a candidate with research work of very high standard. Provided further that if a candidate possessing a doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M. Phil., or equivalent degree or research work of quality) may be appointed, provided he has done research work for at least two years or has practical experience in a research organisation/laboratory, on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements. Those who have earlier applied for posts

I (4), II (2 & 5) and III (3 & 5) in response to our advertisement Nos : VIII/79 & XVII/79 need not apply afresh.

IV. SECRETARY TO THE DIRECTOR (Academic)

Pay Scale

Rs. 700-40-900-EB-40-1100-50-1300.

Qualifications : Essential

(I) First or High Second Class (B+) Master's Degree in English. (II) A Research Degree or published work of merit. (III) At least 3 years academic administrative experience in a University College or Government Department.

Desirable

(i) Experience of different aspects of University administration, ability to draft reports, proceedings of Committees etc. (ii) Knowledge of a foreign language.

General Information

(1) One post under I (1, 4 & 5), II (6), III 1, 4 & 5 & IV are permanent. One post under II (6) and one under III (2) are leave vacancies. All other posts are temporary but are likely to continue. (2) Qualifications are relaxable in exceptional cases. (3) A higher start in the grade may be considered for specially qualified candidates. (4) Due consideration will be given to candidates belonging to SC/ST for the posts of Lecturers/Associate Fellows. (5) All appointments will be on probation for one year in the first instance. (6) Appointments to the posts of Fellows and Associate Fellows will be made on a contract for one year in the first instance, after which they will be considered for appointment to the posts of Professors, Readers and Lecturers respectively on the recommendation of the Selection Committee. (7) Persons appointed will be required to participate in the teaching and research programmes in other departments also. (8) Persons appointed may be posted to work at Hyderabad or at any of the Regional Centres of the Institute, as and when required. (9) The Institute pays allowances at Central Government rates with the benefit of Contributory Provident Fund-cum-Gratuity according to rules. (10) The Institute reserves the right to accept late applications, in exceptional cases. (11) A candidate applying from outside India will be exempted from the submission of the application on the prescribed form and the payment of application fee.

AGE OF RETIREMENT

60 years.

INSTRUCTIONS

1. Separate applications should be made for each post enclosing seven copies of the list of papers published with full particulars along with one copy of each publication. 2. Candidates not found suitable by the Selection Committee for the post they have applied for may be considered for a lower cadre post. 3. Candidates called for interview from a place outside Hyderabad will be paid a contribution towards their travelling expenses at the rate of second class railway fare, including sleeper coach charges, from the place of their work or residence, whichever is nearer, by the shortest route, subject to the production of a railway receipt. 4. A copy of the application form can be had from the **Registrar, Central Institute of English and Foreign Languages, Jamai Osmania, Hyderabad-500007** on payment of Rs. 2/- in person or by postal order payable to 'Director' CIEFL, and by sending a self-addressed envelope (10 x 23 cm) stamped for ordinary post (55 paise) or registered post (Rs. 2.55) and indicating the name of the post applied for.

Subscription Rates

Period	Inland	Abroad	
		Surface	Air
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5 years	72.00	350.00	550.00
Single copy	00.80 ps.	4.00	8.00

The Journal is mailed on 1st & 15th of every month.

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
BOMBAY-400020

Applications are invited on prescribed forms available from the University Office, Bombay, on payment of Rs. 5/- (by M.O. or in cash) for the following posts to be filled in at the Colleges conducted by the University at Bombay and Pune. Applications should reach the undersigned before **April 25, 1981**.

	No. of Posts	Medium of Teaching
A. HOME SCIENCE COLLEGE AT JUHU CAMPUS, BOMBAY		
Post-Graduate Level		
1. Professor in Child Development	One	English
2. Reader in Foods and Nutrition	One	English
College Level		
1. Lecturer in Foods and Nutrition	One	English
2. Lecturer in Textiles and Clothing	Two	English
B. HOME SCIENCE COLLEGE AT PUNE		
1. Lecturer in Microbiology (B.Sc. Biology & M.Sc. Microbiology)	One	English & Marathi
2. Lecturer in Home Management	One	English & Marathi
C. COLLEGE OF PHARMACY, JUHU CAMPUS, BOMBAY		
1. Principal	—	—
2. Lecturer in Pharmaceutics	Two	English
3. Lecturer in Pharmaceutical Chemistry	One	English
4. Lecturer in Pharmacology	One	English
5. Lecturer in Pharmacognosy	One	English
D. COLLEGE OF NURSING, BOMBAY		
Lecturer in Nursing (Master's and Bachelor's Degree in Nursing Education or Community Health Nursing or Obstetrics or equivalent degree of a foreign University—Teaching experience of 5 years' preferred)	Two	English
E. COLLEGE OF EDUCATION, BOMBAY		
Lecturer in Education (Post-Graduate Degree and Geography or History; and B.Ed. with Geography or History and/or Maths and/or Maths & Science)	One	Marathi

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Qualifications

A. 1. **PROFESSOR** : An eminent Scholar with published work of high quality, actively engaged in research—10 years' experience of teaching and/or research in the subject—experience of guiding research at doctoral level

OR

An outstanding Scholar with established reputation who has significant contribution to knowledge.

Salary Scale

Rs. 1500-60-1800-100-2000-125/2-2500+ admissible allowances.

2. **READER** : Good academic record at Bachelor's and Master's level in Foods & Nutrition, at least with first or high second class with a doctoral degree or equivalent published work in the subject. Evidence of being actively engaged in (i) Research or (ii) Innovation in teaching methods or (iii) Production of teaching materials. 5 years' experience and/or research provided that at least 3 of these years were as lecturer or in an equivalent position. This condition may be realxed in the case of candidates with outstanding research work.

Salary Scale

Rs. 1200-50-1300-60-1900 + admissible allowances.

Qualification for Principal

(a) Doctor's Degree or an eminent scholar with published work of high quality, actively engaged in research. Ten years' experience of teaching and/or research, in one of the subjects related to pharmaceutical sciences. Experience of guiding research at doctoral level will be considered as an added qualification.

(b) Good academic record with first or high second class at Master's level or equivalent degree of a foreign University, in a subject under pharmaceutical sciences.

(c) At least 5 years administrative experience at an educational institution of higher learning.

Salary Scale

Rs. 1500-60-1800-100-2000-125/2-2500+ admissible allowances.

Qualification for Lecturers at Pharmacy College

(i) Master's Degree in appropriate field in the subject concerned.

(ii) Consistently good academic record with a bachelor's degree in Pharmacy. First class at Bachelor's degree and/or Master's degree level.

(iii) One year's relevant professional experience outside academic/research institution.

Note

Provided that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a period of five years of his/her appointment failing which he/she will not be able to earn future increments, until he/she fulfils this requirement.

Salary Scale

Rs. 700-40-1100-50-1300-Assessment-50-1600 + admissible allowances.

Qualifications for Other Lecturers

(a) Consistently good academic record with at least first or high second class at Master's level in the subject concerned or an equivalent degree of a foreign University; and

(b) An M. Phil. Degree or a recognised degree beyond the Master's level or published work indicating the capacity of a candidate for independent research work.

Note

(1) Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his/her published work is of very high standard, it may relax any of the qualifications prescribed in (a) above.

(2) Provided further that if a candidate possessing the qualifications at (b) above is not available or not considered suitable the college, on the recommendation of the Selection Committee may appoint a person possessing a consistently good academic record on condition that he/she will have to obtain an M. Phil. Degree or a recognised degree beyond the Master's level within five years of his/her appointment, failing which he/she will not be able to earn future increment until he/she obtains that degree or gives evidence of equivalent published work of high standard.

Salary Scale

Rs. 700-40-1100-50-1300-Assessment-50-1600 + admissible allowances.

Note

(a) Only suitable candidates will be called for interview. (b) Other things being equal, preference will be given to candidates from Scheduled Castes/Tribes/Other Backward Communities. (c) Higher Starting salary may be considered in exceptional cases.

Smt. Kamalini H. Bhansali
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY

KANPUR

Advertisement No. 3/81

Applications are invited for two posts of Assistant Professor/Lecturer in the laboratory for Lasers and Laser Systems, Department of Physics. The laboratory for Lasers and Laser Systems will develop into an inter-disciplinary advanced centre. The Laser laboratory seeks individuals with ability and aptitude for teaching, research and development in the areas of Lasers and Laser technology. If suitable candidates are available both posts could be filled in at the level of Assistant Professor. The appointment may be shared if necessary between the Laser Laboratory and the Department of the discipline in which the candidate has taken his Ph.D.

(i) ASSISTANT PROFESSOR

Scale of pay

Rs 1200-50-1300-60-1900.

Qualifications : Essential

Doctorate in Physics, Chemistry, Electrical Engineering or Mechanical Engineering with good academic record and at least three years of professional experience in the areas of Lasers or Laser technology with good research/development record, outside the work for degrees as evidenced by research publications in journals of repute and/or developmental project reports.

Desirable

Experience in teaching undergraduate/post-graduate programmes and a record of independent research-proficiency in the areas of lasers, laser technology, electronic instrumentation or scientific instrumentation.

(ii) LECTURER

Scale of pay

Rs. 700-40-1100-50-1600.

Qualifications : Essential

Doctorate in Physics, Chemistry, Electrical Engineering or Mechanical Engineering with good academic record and adequate research and development experience resulting in research papers of good quality

Desirable

Some teaching/research experience and a strong interest in developing undergraduate/postgraduate programmes and also in research and developmental activities in the areas of lasers, laser technology, electronic instrumentation or scientific instrumentation.

The Laser laboratories are fairly well equipped with different types of lasers and laser systems as well as related spectroscopy and microwave equipment. A number of candidates have been trained for Ph.D. and Masters degrees in these laboratories. The Institute has well equipped laboratories and central facilities. The Computer Centre has DEC 10, and PDP 1 systems as also ECIL TDC 216 and a group of experienced programmers. The following central facilities are available. 2MeV Van de Graff accelerator, 4096 multi channel analyser and other radiation detection equipment, liquid nitrogen and liquid helium plants, NMR, EPR, Mass Spectrometers, X-ray laboratory, UV and IR spectrometers, Glass Blowing shop, Crystal Growth facility, Precision Machine Shop, Electron Microscope besides a large workshop for the fabrication of specialized research apparatus. The Institute has a library with more than 1,50,000 volumes and 1,300 periodicals.

Residential housing is provided on Campus. The Campus facilities include primary and higher secondary schools, a health centre and shopping centre. Besides, there is a swimming pool.

If both the posts are filled at Lecturers level, one post will be reserved for SC/ST candidate. In such a case and in the event of non-availability of SC/ST candidate the reserved post would be treated as dereserved.

Posts are permanent and carry retirement benefits in the shape of CPF Scheme or CPF-cum-Gratuity Scheme or GPF-cum-Pension-cum-Gratuity Scheme as may be opted according to rules. The age of retirement is 60 years. During the first year the appointment will be on probation. Besides the pay, posts carry allowances according to the Institute rules, which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare from the place of duty in India to Kanpur and back by the shortest route.

Applications from within India must be made on prescribed form obtainable free of charge from the Registrar of the Institute by sending a self addressed unstamped envelope of 25 cm x 10 cm size. Applications should be accompanied by a postal order for Rs 7.50 (Re 1.87 for Scheduled Castes/Tribes candidates).

Applicants from abroad may apply on plain paper enclosing complete biodata and names of three referees from whom reference letters may be obtained.

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016, U.P. (India) **on or before March 20, 1981**.

INDIAN INSTITUTE OF TECHNOLOGY

KANPUR

Advertisement No. 2/81

Applications are invited for two posts of Senior Scientific Officer I/Senior Scientific Officer II in Laser Laboratories, Department of Physics, and in Electron Paramagnetic Resonance Lab. of the Institute in the following pay scales :—

Senior Scientific Officer I :
Rs. 1100-50-1600.
Senior Scientific Officer II :
Rs. 700-40-900-EB-40-1100-50-1300.

(i) Senior Scientific Officer I/II : One Post

Qualifications

For Senior Scientific Officer I

Ph.D. in Physics plus three years experience in Laser Spectroscopy and/or Microwave Spectroscopy.

OR

M.Tech. in Electrical Engineering plus four years experience in Lasers and/or Microwaves.

For Senior Scientific Officer II

Ph.D. in Physics in the area of Microwave Spectroscopy or Laser Spectroscopy.

(ii) Senior Scientific Officer I : One post

Qualifications

Ph.D. in Physics plus three years experience in Electron Paramagnetic Resonance or related areas.

OR

M. Tech. in Electrical Engineering plus one year experience in Scientific/Electronic Instrumentation or Lasers/Microwaves.

The posts are contractual for a period of four years initially, extendable by a further period of two years at the end of which the candidate is eligible for consideration to a permanent post, and carry benefits in the shape of CPF Scheme Besides pay, the posts carry allowances according to the Institute rules, which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare from the place of duty to Kanpur and back by the shortest route.

Applications from persons in India should be made on prescribed form obtainable free of charge from the Registrar of the Institute by sending a self-addressed unstamped envelope of 25 cm x 10 cm size. Applications should be accompanied by a crossed Indian Postal Order of Rs. 7.50 (Re. 1.87 for SC/ST candidates).

Persons abroad may apply on plain paper along with a complete biodata and names of three referees from whom reference letters may be obtained.

Applicants who are employed in a Government/Semi-Government organisation or Institute, should send their applications through proper channel, else they will be required to produce a 'No Objection' certificate from their employers at the time of interview.

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016 U.P. (India) **on or before March 31, 1981.**

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University News

Food Science & Technolog
Information Service
2 [illegible] MAY 19[illegible]
C.F.T.R.I. MYSORE

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH APRIL 1, 1981

Shri S.B. Chavan (third from left), Union Education Minister with Dr. Ramesh Mohan (first from right), Director of the Central Institute of English & Foreign Languages, Hyderabad, which he visited recently.

ASSOCIATION OF INDIAN UNIVERSITIES PUBLICATION

A.I.U. PUBLICATIONS

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Editor: ANJNI KUMAR

Financing of Universities

S.K.R. Bhandari*

University Finance in India are generally not in good shape. Almost all the universities depend on government grants for the vast bulk of their Financial requirements. This has resulted in may problems, the most serious being inroads into university autonomy by governmental agencies and introduction of uncertainty in the functioning of universities. The sources of university finance are:

1. Grants from government agencies
    a—Maintenance/Recurring grants.
    b—Development grants.
2. Revenue from fees.
3. Income from investments.
4. Income for property and services.
5. Donations and grants from other sources, including specific grants/reimbursement of costs for research projects etc. from governmental agencies like ICAR and CSIR etc.
6. Borrowings.

In most universities the percentages of items 2 to 5 to total expenditure are very small. In a few universities however, who are largely affiliating type, the revenue from fees may form a larger proportion of expenditure, which may be even more than half of the total recurring expenditure. In others, where finances are in bad shape item 6 may form a large chunk. Very few universities have investments and property large enough to yield sizeable revenue. The other sources are neither sizeable nor dependable.

Item 2 (Revenue from fees) is the only source which is completely or largely under university control. If university autonomy has to be meaningful and if universities have to play their true role in society, they should be permitted to make this as the most important source. It is common knowledge that the fees charged by universities are very low. They are not only too low but they have remained static over the last many decades inspite of enormous increase in costs of running universities. Then again, the fees charged bear no relationship to the costs incurred in different faculties. While in the humanities, social science, commerce and law the fees are somewhat large as percentage of costs, in the science, technotogy, medicine and agriculture and other high cost faculties the fees are awfully low. This has put an increasingly large burden on the government on the one hand, on the other hand it has increased the pressures for admissions in universities. The large and unbalanced growth in university enrolments is atleast partly due to the prevailing low level of fees. Even fees charged for maintaining hostels are much too low. This large scale subsidisation of university education by government, had not benefited the really needy

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Vice-Chancellor, APS University, Rewa.

people. The benefit goes equally to the affluent and the poor and since almost all affluent people get their children educated upto the highest possible level, they are getting a loin's share of the subsidy. The benefit also goes to people of influence who get their children educated even though they may not be meritorious. Thus, the entire system has become de-egalitarian.

The fees should be fixed at a level where the recurring costs are fully met. The subsidies could then be in the form of liberal free studentships, which may be extended to as much as 50% to 60% of all students.

Thus, the revenue from tuition fees whether directly realised from the students or from government by way of cost of free studentships would meet bulk of the recurring expenditure of universities. The revenue from other fees, which should in no case be less than cost, may also yield surpluses. For example, examination fees charged by candidates appearing privately or those joining correspondence courses could be much higher than that for regular students. This would be quite equitable, because these candidates do not incur much recurring expenditure (except on books and supplies) on their university level education. In some universities these sources are yielding good revenue which has proved useful to them in balancing their budgets.

The fees prescribed for various miscellaneous services like issue of marks sheets, migration certificates, enrolment etc. are also very low and can be increased suubstantially without imposing a large burden on sers of university services.

Then, there are some other services which the universities perform for their residents, students and staff, such as electric and water supply, dairy, canteens and messes and poultry, food grains raised on farms, fair price shops, etc. No costing is generally resorted to and in most cases they involve subsidising the consumers. These services should all be run on commercial lines and they should not only cover full costs including that on employees, accommodation and interest on capital but yield a small surplus to cover new investment. Where for policy considerations some services have to be subsidised (such as canteens and messes), they should clearly be labelled as such, rather than disguised.

Many universities are in a position to render technical, advisory consultancy and training services. This can be converted into a major source of revenue as has been demonstrated by the Institutes of Management and some technical institutions. The huge reservoir of expertise which the universities possess is not being made use of fully. It should be carried on as a well organised service activity which will be of triple benefit viz. (i) enriched experiencme for faculty and technical staff, (ii) additional income for the faculty and staff and (iii) revenue for the universities. A small additional staff will be needed for organising these services but the resultant revenue will be much larger. The training and consultancy programmes organised for large corporations substantially large fees can be charged and for small scale units they can be on the cost basis. Even rendering services on cost basis, would result in bringing in revenue because full faculty and staff cost would be realised but they would be paid only marginal extra allowances. In the absence of organised efforts these can be at time be counter productive in as much as faculty may make them almost their wholetime vocation and neglect regular teaching and research as is being complained against some faculty of the Institutes of Management.

Some universities have land and other property in large cities which if properly managed can yield sizeable incomes. Some additional investment in building shops and houses for commercial renting could prove fruitful where land is available in busy localities. The need is for better estate management.

Out of these measures, the most important one, namely raising tuition and other fees is not within the purview of the universities. For this, public opinion will have to be built up and government and political parties would have to be educated. The Association of Indian Universities could take on this task and start a dialogue with leaders of political parties and government. The other measures are for the universities themselves to adopt.

While it will not result in additional revenues, a much needed reform for many universities would be sanction of maintenance grants by governments as fixed amount with built-in provisions for increase and without need for special sanctions being taken all the time. Universities should not be required to look to government all the time for their recurring needs.

Wise financial management can also result in some income from investments, though not very large. For instance, large amounts are often left in current accounts for long periods. If proper cash-budgeting is done they need not be kept so. Use of savings accounts and short-term time deposits can be resorted to with advantage. Even long-term fixed deposits can be so arranged that they can mature at expected times of disbursement. Many funds are often kept in savings accounts. They can be profitably kept in long-term deposits. Many funds are kept in liquid form on the plea that they will be needed in emergencies. For such purposes, short-term borrowings on the security of fixed deposits will be a better alternative. This will result in earning, say 10% interest for long periods and paying 12% for brief periods.

Development grants

As far as development grants are concerned, direct dependence on government is inevitable. But in this respect there are far too detailed and time-consuming investigations and rigidity of procedures. Less time consuming, procedures should be evolved. Fixed amounts should be provided to the Universities for a particular plan period and there after universities should be free to make internal adjustments. After the sanction of plan funds, further need for specific sanction from government should not be necessary because universities have their own systems for evaluation of proposals and sanctions. ❑

Food Science

Academic Management of Technical Institutions

R. K. Singh*

Most students have a feeling that the education imparted to them is out of date and anachronical. It has not yet been adopted to the new needs and circumstances in the country. It fails to dislodge the feeling of futility that most students and teachers have. It does not cultivate students' imagination, does dot enrich their personality, does not encourage them to be creative or to express themselves or even allow them freedom of drawing meanings or giving interpretation of things. It fails to make them independent individuals as well as responsible members of the community, inventors of techniques and creative dreamers. The form and content of education has resulted in a psycho-spiritual impotency, development of wrong intellectual habits and a spineless academic quest. The existing pattern of education and management meets neither the requirements of democracy nor the needs of the society.

The present educational system, reads a U.G.C. paper, is "now is a state of crisis due to uncontrolled and unplanned expansion, inadequate inputs in terms of money, materials and talent, falling standards in a large proportion of institutions, weekening of student motivation, increase of educated unemployment, weakening of discipline and dysfunctionalities created by the adverse effect of socio-economic problems, a lack of relevance, and significance, and because of undue political interference by subjecting universities to political and partisan pressures and lack of a national consensus in dealing with such situation . . . This crisis continues to deepen with the passage of time and spreads, not only to the entire educational system but back again into the society itself."

The critical reflection made is intended to pave the way for a fruitful development of democratic education, if not to draft a complete catalogue of all the reforms. It is written to stress (i) internal reforms and continued improvements of the existing system, and (ii) search for practical alternatives in the 1980s.

No real change will take place unless such steps are taken that effect the system as a whole, both now and in the future. What is greatly missing is a considered intention, a clearly conceived objective and sufficient firmness of purpose to bring obout a profound and lasting improvement. In the 1980s, we would need (i) experimenting with innovation, (ii) searching for new and more varied means of financing education including research, (iii) reducing the waste of financial and human resources, (iv) less and less dependence on imported models, and (v) highly decentralised administration and management with wide participation of teachers and students at all levels.

The educational strategies in engineering institutions must change in the light of new economic and cultural trends in our society. The length and breadth of technical education should be recast in national perspective (i) to reduce the stereotyped functions and situations for a particular trade or profession, (ii) to eliminate the elite values vis-a-vis the fast evolving socio-economic consciousness of the democratic set up, (iii) to break down bureaucratic aspects of all educational activities and (iv) to bring about a rapid decentralisation of administration. The curriculum planning, teaching, and all research and development activities should not only aim at the development of the students' critical imagination and intellectual liberation but also keep pace with the socio-economic growth in the country. The future of various engineering colleges and scientific and technological institutions lies in democracy, humanistic development and change. The aim and standard of education need re-defining for the all-sided development of students. The education offered should aim at realising man's potentialities with an integrated growth of intellectual and moral character and creating a dynamic, non-conformist and non-conservative frame of mind.

Though reformation of the system should be a continuous process, change in the attitude is basic for any step toward overhauling. The existing bureaucratic and centralised administration should be replaced by a decentralised, democratic, elastic, dynamic and *academic* administration that encourages and follows innovative initiatives and reforms, academic freedom to students and teachers, and acts like a real autonomous body by effectively curbing the various cliques of vested interest always obstructing change and growth. The present administrative machinery is not in closer contact with reality and hardly bothers the majority of teachers and students who are co-partners in the educational activities. There is hardly any collaboration among researchers, teachers and decision-making bodies. The result is (i) no research activity contributes to the basic teaching, and (ii) reform in educational practices do not rest on teaching experience.

In the past decade, most of the technical institutions expanded quantitatively, i.e. building, equipment, teaching staff, etc. but as it has been noted, quantitative expansion does not go hand in hand with efficient education. Huge financial resources have been

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laid out to develop the institutions physically but results have fallen short of expectations. Now their strategy of physical expansion *must be modified and priorities re-set* according to the future needs with a continuous re-appraisal of meaningful, qualitative achievement. Before further expansion is thought of, *quantitative development made in the past should be consolidated toward a qualitative development.* In the coming decade, it is imperative that technological R & D is adapted to the needs of economy (and even overall educational planning to the anticipated requirements of the society). To give a proper direction to research and development of its findings, an active mechanism at institutional level should be evolved to monitor and hold over-all responsibility of the R & D activities, particularly *investment and return.* It should make proper assessment of all R & D activities including the performance of Departmental Research Committees. In fact, wherever existing, forums like Academic Council, Departmental Advisory Committees, Departmental Research Committees etc. should be activated and utilised to the maximum. R & D activities should not be initiated and processed by one or two individuals but a group of competent teachers or the machinery at the institutional level as suggested above. Indeed, such a committee would begin its work with (i) defining the area of R & D, (ii) fixing the priorities of R & D, (iii) taking stock of the physical facilities provided and needed in the future, (iv) suggesting measures for quality research and correlating it with basic teaching, and (v) taking stock of research at departmental, faculty and institutional level. Nevertheless, individuals and groups should be supported on merits in carrying out high quality research including fundamental and application oriented research. Though steps to harness talents in a particular field must be taken and we should not hesitate to spend money for academic purposes, wasteful practices should be stopped.

Apart from this, it may be recommended to the government that there should be an ACADEMIC VIGILANCE COMMITTEE (on regional basis) under the control of the Government with membership from UGC and other university/college professors of eminence to monitor all research and development and academic activities that have far-reaching future significance to the nation, and also to watch whether universities/colleges are functioning to realise the avowed aims of socio-economic and moral development of the future society.

As the institutions like IITs, ISM and Regional Engineering colleges cater to the needs of certain profession it is necessary that there is a constant interaction between the industries and the teachers. The courses should be realistically framed according to the needs of industry and the government's policy of socio-economic growth. It should be a planned education with full coordination between the governmental and industrial agencies that give employment to the graduates turned out from these institutions. What seems more desirable is a continuous study of job market. The student's in-take should be according to the possible consumption of the output by the employing agencies. The emphasis, however, should be on opportunities for self-learning with less and less institutional dependence. The course material and training should provide for maximum *vocational mobility*; particularly for the graduates of Petroleum Engineering, Mining Engineering, Geology and Geophysics. It should equip them to a variety of jobs and help them have optimum mobility in employment and facilitate conversion from one branch to another. It may be very helpful if teachers of professional subjects are sent to fields for first hand experience for at least one to two years at regular intervals (of say five years) as it will also facilitate their drawing up a more realistic and purposeful curriculum besides updating their professional knowledge and skills, and thus enable them to discharge their responsibilities toward short-term, in-training, refresher courses.

To enlarge their professional activities, these institutions should be involved in international cooperation for development in fields like Electronics, Petroleum and Mining technology. The engineering institutions may seek collaboration from advanced countries and even financial assistance from the U.N. agencies in their research projects of mutual interest like energy. Priority, should also be given to inter-university collaboration and the new courses introduced. The degree courses should be restructured, updated and made at par with the degree courses offered at other institutes of repute in the world.

A re-orientation to the short term courses and consultancy is also a must, since, instead of serving any genuine academic interest, these seem to have slipped into some financial interest of a handful of individuals. A deeper analysis of the various programmes and the feedback received is necessary. It seems the concept of Continuing Education has not been kept in mind while chalking out the programmes of short-term courses or consultancy projects. Though the importance of such activities cannot be minimised in the context of a specialised professional institution, but we must see that (i) the basic undergraduate teaching is not neglected, (ii) the academic purpose is not lost for monetary advantages, (iii) this does not vitiate the academic atmosphere, and (iv) a uniformly high standard of service and professional competence stressing quality is maintained. In the 1980s, therefore, what seems more useful and serving the cause of the nation is that more and more low cost part-time courses are started for in-service skilled, semi-skilled workers, technicians and even personnel who do not possess school certificate or professional degree or who have acquired professional training and experience in a particular branch but want to better their academic qualification etc. Possibilities of starting certain shorter duration courses for in-job technicians and offering diplomas/certificates or even degrees which are of immediate value in the job market should be explored. Such condensed or shorter duration or part-time courses should be flexible taking into account skills and experience acquired by the candidates outside the school or college. However, it should be ensured that the degrees, diplomas or certificates awarded carry sufficient weight among employers.

The impetus needed to serve the cause of Adult Education is also to be provided by the Continuing Education programme. The Adult Education schemes should envisage the service of under-privileged people like labourers, peasants and agricultural labourers, mine workers who are untrained or inadequately trained or even illiterate, and are *willing to learn* something which is useful to them, professionally and otherwise.

It is very unfortunate that for decades, teaching of the subjects of basic sciences and Humanities has been looked down upon and the departments considered as *subsidiary/service* departments. The Departments of Humanities and Social Sciences, and Mathematics and Physics and Chemistry have not been allowed to grow freely and thus the basics of technical subjects neglected. The humanising and moralising effects of the teaching of Humanities and social and applied sciences have been recongnised throughout the world, and at engineering institutions in the 1980s the future technocrats/engineers must be given good knowledge of liberal subjects. Even the U.G.C. in its policy frame, appreciates the significance of Humanities in realising social transformation and national development. My experience tells me that most of the technical students appreciate the study of *belles-lettres*. Facilities for post-graduate, and doctoral studies in Psychology, Economics Labour Relations, Literature etc. should be provided even at institutions like the Indian School of Mines.

To improve teaching and administration in general, a few more suggestions may be made: (i) appointment to the post of Professor should be contractual initially for three years or so, and a person who has no qualitative achievements should not be allowed to continue. This process may be slowly extended to other lower cadres (Assistant Professor/Reader, Lecturer etc). (ii) the post of Head of the Department should be by rotation; (iii) better library facilities should be provided for quality research; (iv) steps to improve service conditions with uniformity in appointment to the same cadre should be taken; (v) in all institutions the scheme of automatic promotion to the next higher cadre for a teacher who has served in the lower cadre for fifteen to twenty years successfully should be implemented (till the contractual appointments are fully effected); (vi) while objective assessment of a teacher is always good, he must have a sense of security in his position.

To sum up: (1) All future attempts at change in the system should be delinked with the politics of convenience and consciously and purposefully directed with the aim of improving the present system. (2) Teaching strategies should be changed. Instead of wasting energy over *what to teach and how to teach or what someone should learn*, the nucleus of the strategy should be *what situation, things or people would induce the learners to learn*. Students are the centre of activities and they have to be encouraged in their task of learning, to be inspired to put forth their best effort to learn. (3) The manner and matter of teaching should cultivate the students' imagination, enrich their personality, and make them responsible citizens, (4) It should also meet with the country's socio-ecoomic needs and cater to the democratic values besides creating a dynamic, non-conformist and non-conservative mental and intellectual make-up. (5) The administration should be decentralised and democratic participation of teachers and students at all levels of management should be allowed. (6) Closer collaboration among teachers, researchers and decision and policy making bodies is necessary if teaching and R & D is to grow unitedly, realistically and meaningfully. (7) Quantitative development of the R & D activities should move toward consolidation and quality development. R & D should serve the nation's socio-economic needs. (8) A mechanism at institutional level should be evolved to monitor all R&D activities, investment and return, and the performance of all academic forums. (9) Formation of an Academic Vigilance Committee may be recommended on regional basis under the control of the Government to monitor all academic and research activities that have far-reaching national significance. (10) A process of constant interaction between the government agencies/industries absorbing the engineering graduates, and teachers should be started. (11) The disproportion between supply and demand cannot be allowed to grow. It has to be contained before the graduates in disciplines like Mining and Petroleum find themselves unable to get job. (12) The courses offered should provide for maximum vocational mobility and facilitate change from one branch to another. (13) The professional academic activities of technical institutions can be extended successfully by involving them in international and interuniversity collaborations. (14) While there is a need of thorough analysis of the present short term courses and consultancy projects, many more courses of shorter duration may be started according to the needs of the industry and which have immediate job-value. Facilities for part-time and private study should also be provided for the injob technicians. (15) The significance of Continuing Education has not yet been realised and it should be revitalised to a purposeful direction. (16) There should be a uniform principle and procedure in academic programmes in all departments—like new course, new projects and consultancy etc. Waste of financial and human resources should be stopped. (17) Teaching of the subjects of Humanities and social sciences should be respected by all and the Department expanded by equipping it with facilities for post-graduate and research studies. (18) Appointment to the Post of professor should be contractual and the process should be slowly extended to other lower categories of teaching posts. (19) The post of Head of the Dept. should be made rotational. (20) Steps to reduce the cost of education without affecting the efficiency and quality should be taken. (21) Improvement in service conditions is highly desirable. The scheme of promotion to the next higher cadre for a teacher who has served 15 to 20 years in the lower cadre should be implemented. ☐

Role of School of Mines in national development stressed

Excerpts from the convocation address delivered by Dr A. R. Kidwai, Governor of Bihar, at the Indian School of Mines at Dhanbad.

The Indian School of Mines is the premier institution in the field of mining and minerals engineering and earth sciences. The School of Mines is not only concerned with the teaching at the graduate and post-graduate levels but, over the years, it has also made significant contributions by taking up research projects of applied nature and providing consultancy and extension services to the mining industry in the country. I am happy that the School of Mines has continued to keep pace with scientific and technological developments in various fields of its specialisation, and thus it has matched up its capabilities with the growing requirements of industrialisation of our country. The School of Mines was established in 1926 with the hope to fulfil the requirement of mining, mineral, metallurgical and petroleum industries in the country. It is gratifying to note that the institution has fulfilled the objective for which it was set up. Today, most of the Mining Engineers of the country are the alumni of this school and have played considerable role in the development of mining and mineral industries of the country.

Fortunately, India is rich in mineral resources and most of the minerals are located in south Bihar of which Dhanbad has become a focal point. Because of the abundant availability of coal, iron, and other strategic minerals, this area has acquired a significant position in industrial development plans as a base for India's future economic development. From this point of view, South Bihar is destined to play an important role as a base for India's industrial development in the same way as was the case with Ruhr in Europe and Pensylvania in the United States.

Since Independence remarkable progress has been made in all directions, specially in agriculture and industry. We have not only acquired self-sufficiency in agriculture but became surplus producer of food, and it is hoped that within the foreseeable future we can double our present agriculture productions. In the field of industry, India today ranks amongst the eight topmost countries of the world and there is no area of industrial production where we have not acquired sufficient expertise including sophisticated areas of manufacturing ships locomotives, aeroplanes, electronic controls, atomic energy and space technology. On the basis of our performances during the last 30 years, one could say that we were so far engaged in acquiring scientific knowledge and technological experience to build up necessary infrastructure for India's future development, but now the country has reached a take-off stage, when we can develop on our own industrial technology and expertise for greater advancements ahead.

We are confident that with the beginning of the 6th Five-Year Plan it will be possible to make much faster progress in all fields of production. While we are proud of India's progress over the last three decades, we cannot ignore the fact that with the large population of this country the problems which we are faced with are much bigger and, therefore, commensurate effort has to be made to increase India's total production to an adequate level so that before the beginning of the era 2000 A.D., India is counted among the three or four topmost industrialised nations of the world. This is a great challenge to our economists, scientists, technologists, management and workers engaged in all fields of economic and productive activities. Taking into consideration India's natural resources and manpower, I am confident that we will be able to achieve these objectives.

It is in this context and background that we have been planning our educational training, research and developmental programmes. The role which Indian School of Mines has so far played is creditable, but the role which it has to play in future is still more important and has to be commensurate with the challenges that the country is facing in the field of harnessing its mining and mineral resources. The better and easily accessible resources are diminishing quite fast and, therefore, the more difficult mining tasks and problems have to be rapidly and systematically tackled. We have to go deeper in the mines and develop processes for the utilisation of inferior ores as well. The recent advances in science and technology have made significant impact on earth-sciences, and mining and mineral engineering, therefore, it is the responsibility of the School of Mines to keep itself abreast of the latest developments so that standards of education, training and mineral exploitation in India are comparable with those adopted elsewhere in the world.

Today, the advanced countries of the world are also engaged in surveying and developing methods for the utilisation of tremendous mineral wealth lying at the Ocean-beds. This is an area which can profitably be utilised by India as well. I am glad that some progress in this direction is being made by the Institute of Oceanography and the G.S.I. But since the Indian School of Mines is our main institution for education and training in earth-science, it should take initiative in this direction also.

Mineral resources of any area are part of the total environment and are conditioned by ecological factors. Therefore, while exploiting mineral resources one has to keep in mind that the ecological system is least affected. Indiscriminate mining without taking into consideration agriculture and other uses of the land can do great harm. In advanced countries considerable attention is given to the restoration of land for forest and agricultural use after the mining has been completed.

Extensive mining operations all over South Bihar have led to the displacement of a large number of persons engaged in agriculture and occupations relating to forests. This has caused serious socio-economic and law-and-order problems in certain areas, particularly among Adivasis. Therefore, before acquiring land for mining operations one has to see how the displaced persons could be usefuly employed in the new mining operations or in the areas of abandoned mines which can be restored for agriculture and other purposes. The State Government is faced with serious problems regarding rehabilitation of the displaced persons. Measures have to be adopted to save them from hardship. Mining and industrial operations represent productive economic activity and if such operations are carried out along with other industrial development activities. I am sure displaced persons can usefully be utilised. I would therefore like to draw the attention of those concerned with mining industries to pay full attention to the social problems which affect the community in which they are working otherwise an innospitable atmosphere will result which will not be conducive to productive work.

While discussing the strategy of India's Planning and Development programmes, we must remember that our plans were shaped by late Pt. Jawaharlal Nehru, who had dreamt of India's development based on very high standards of scientific and technical education and research, as a result of which we have been able to produce a large manpower of qualified Scientists and Technologists, who have so far played very important roles in all developmental activities. Therefore, emphasis on high standards of education must continue if we have to achieve highest standards of production in all areas of economic activities and if we have to catch up with the advanced countries of the world.

The other essential requirements for India to achieve its legitimate position amongst the advanced nations of the world are keen sense of discipline and character which are imperative for organised economic and industrial activities. These values have to be acquired in the process of education through emphasis on moral values and a sense of dedication. Education without inculcating these values does not help much.

Now, I would wish to congratulate the graduates of the School of Mines who have just completed their education. You are now going to embark upon a new career for future life. It may be worthwhile, for you to remember that getting a degree is only a means to an end, not end in itself. It merely equips you to enter a profession of your choice. Please do not think

A view of audience at the convocation of Indian School of Mines hled at Dhanbad.

that you have learnt everything and known everything; for wide and extensive are the vistas of knowledge. The horizons are fast widening and what you have learnt may just be a drop in an ocean. What is taught in a University is a method of acquisition and assimilation of knowledge, pertaining to different subjects and disciplines. Knowledge and learning can never be static. Almost every discipline is growing fast and being constantly enriched with new frontiers of knowledge. Perhaps each one of us, even at a very late stage of career, has to continue to be a learner. This learning process continues throughout one's life. Besides formal methods, there are various non-formal means and avenues which go on enriching our knowledge and experience.

Life and society are much larger and certainly life's experience cannot be covered or taught, in a span of few years spent in a seat of learning. As a matter of fact, the basic purpurpose of higher learning is to properly equip the mind to be receptive to new ideas, to be able to analyse and sift facts and to perceive new dimensions of knowledge. To achieve this, one must have a disciplined mind with an inquisitiveness to learn, analyse and assimilate. It should be a searching and questioning mind, accepting nothing that is not supported by critical analysis and rejecting nothing which has been scientifically proved and results properly tested. Such a disciplined mind has the scientist's training and traditions of questioning, analysing, understanding, assimilating and thus creating new knowledge.

What therefore, you have acquired is 'hopefully' a properly organised inter-dependent and inter-related knowledge, which has equipped your mind with a scientific spirit of quest and enquiry, making your brain a sharp intellect, with the tools of analysis and not just a lumber-room stacking unrelated and unconnected things,

Prof. Marwaha takes over as AIU President

Professor Gurbachan Singh Marwaha, Director of Indian School of Mines, has been elected President of the Association of Indian Universities. He is the first mining engineer, indeed first from the field of mineral sciences and technology, to be so honoured in India, and one of very few mining engineers anywhere to achieve such a distinction. Earlier in the year he was re-elected President (for 1981) of the Mining Geological and Metallurgical Institute of India, which is the constituent member from India of the Commonwealth Council of Mining and Metallurgical Institutions.

Prof. G.S. Marwaha

After a brilliant scholastic career, G.S. Marwaha graduated 1st-Class-1st from Indian School of Mines his academic record of 1947 still remains in tact; and in 1947-49 carried out post-graduate studies at the University of Birmingham on Problems of Mine Ventilation, under the guidance of the late Dr W. Hancock. While in the U.K. he also obtained the 1st Class Mine Managers Certificate of Competency in early 1950.

On return to India, he worked for a brief spell as a Colliery Manager before joining the erstwhile Department of Mines—now named the Directorate-General of Mines Safety. His sharp intellect and analytical approach soon got him a posting in the headquarters of the organisation where, in 1951, he became the first Regional Inspector of Mines for Special Investigation. During this assignment, he made outstanding contributions towards the development of mining safety standards and, as Secretary to several committees set up during 1958-60 in the wake of First Conference on Safety in Mines (Mine Ventilation Standards, Mine Fatigue Studies, Problem of Dust in Mines, Standards of Mine Plans, Mine Safety Equipment), he helped to provide a scientific under-pinning to India's mine safety legislation.

The work of the Mine Safety Education and propaganda Committee with which also he was associated, led to the establishment in 1963 of the National Council for Safety in Mines. The Indian Mine Vocational Training legislation also developed from the work of Mine Entrants Training Sub-Committee whose deliberations too were co-ordinated by G.S. Marwaha.

His contributions to the development of Mining Standards in India received recognition from the Mining Geologial & Metallurgical Institute of India in 1971 through its highest award, the Dewan Bahadur D.D. Thacker Coal Mining Gold Medal. His leadership role in the development of standards in general had earlier, in 1968, earned him the covetted fellowship of Indian Standards Institution.

The development plan drawn up by Prof. Marwaha in 1961-62 during his tenure as President of the Central Mines Rescue Committee, still forms the blueprint for the development of mine rescue services in India.

For a period of seven years, Prof. Marwaha was also Secretary to the Board of Mining Examinations for the grant of 1st Class Managers Certificate of Competency.

Promoted Director of Mines Safety in 1967, he was soon given charge of the Eastern Zone/Division which covers some of the deepest and most gassy collieries of the country. He made a lasting impact on the safety standards and practices in this area through his analytical approach, coupled with open communications with representatives of workers, officials, managers and owners alike, and pragmatic leadership.

It was Prof. Marwaha's deep understanding of the problems of the mining industry and its personnel requirements that led to the offer to him, on the eve of the nationalisation of coal mines, to take over stewardship of Indian School of Mines, and it is unanimously accepted that the tremendous growth and development (through diversification) of the School since then has fully justified the confidence that was reposed in him. The school is now providing leadership to all the institutes that are meeting the training and manpower needs of the Indian mineral and mining industries.

His wealth of knowledge and wide acceptability have been tapped by the Government of India, and by other states and organisations, innumberable occasions; notably he was the technical assessor to the Court of Enquiry that reported on the 1976 Chasnala Colliery disaster in which 375 persons lost their lives in 1976. He is a member of the high-powered Group formed recently by CSIR to make recommendations on better utilisation of coal resources.

In recent years, Prof Marwaha has been instrumental in forging a close collaborative link between ISM andt he Krakow University of Mining and Metallurgy—covering long-term exchange of teachers, joint research projects and joint symposia. In appreciation of these efforts, the Krakow University of Mining and Metallurgy awarded to him its Golden Jubilee Medal in 1977. Negotiations are currently going on, with the British Overseas Development Administration, for assistance towards the setting up at ISM of a Centre of Training in Longwall Mine Mechanisation.

Simultaneously with his career interests, Prof. Marwaha has been deeply involved in the affairs of several professional bodies. A Council Member of Mining Geological and Metallurgical Institute of India since 1954, he was the general convenor of the international symposium on Mining of Thick Coal Seams organised by the Institute in 1964. A past Vice-President of the Institute, he was also the Chairman of its Dhanbad Branch for two years.

A Council Member of the Institution of Engineers (India) since 1962, Prof Marwaha was Chairman of its Dhanbad Sub-Centre (1962-63), Asansol Sub-Centre (1971-72) as also of its Mining and Metallurgical Division (1973-75 and 1977-79).

Author of over 100 technical papers and monographs etc., he was awarded the President Rajendra Prasad Gold Medal by the Institution of Engineers (India) is 1965 for contributing the best paper in the Mining and Metallurgy Division.

Professor Marwaha is associated with the Institution of Mining Engineers since 1945 and, since 1967, he is the Co-opted Member for India on its Council. In 1973, he became the first recipient of the IME Overseas Award. A Member/Fellow of the Institution of Mining and Metallurgy since 1959, he has also represented India and Pakistan on its Council since 1968.

Personal

1. **Dr. M.N. Vishwanathiah has taken over as Vice-Chancellor of Bangalore University.**
2. **Prof. Gursewak Singh has taken over as Vice-Chancellor of Punjabi University.**
3. **Dr. W.D. Malik has taken over as Vice-Chancellor of University of Kashmir.**
4. **Dr. V.K. Sukumaran Nayar, Vice-Chancellor, University of Kerala, has been elected President of the Indian Political Science Association.**
5. **Dr. K.N. Udupa has been appointed Rector of the Banaras Hindu University.**
6. **Dr. M.S. Swaminathan, Member, Planning Commission, has been elected Chairman of the U.N. Science and Technology Advisory Committee.**
7. **Dr S.K. Verma, Head of the Department of Rehabilitation and Artificial Limbs, All-India Institute of Medical Sciences, has been elected President of the Indian Association of Physical Medicines for the year 1981-82.**
8. **Dr. Ninnat Olanvoravu has taken over as the Executive Secretary of the Association of South-east Asian Institutions of Higher Learning w.e.f. 1st March, 1981.**
9. **Mr. A.R. Chauhan has taken over as Registrar of the Himachal Pradesh University.**

CAMPUS NEWS

Chavan visits Central Institute of English & Foreign Languages

The Union Minister of Education and Social Welfare, Mr. S.B. Chavan, visited the Central Institute of English and Foreign Languages. Addressing a meeting of the staff and participants of the Institute, Mr Chavan said the problems of language planning and language education in our multi-lingual country were complex. Teaching even one language was a gigantic problem considering the vast numbers of people to be taught, the many different languages we have in this country and the many regional and tribal dialects. There is no foreign model which would suit our language education problems as no other country has faced problems of these proportions with a democratic form of government. Hence one of the basic functions of an institution like CIEFL is to help the country find its own solutions to its problems of language education.

The Minister said the Government was determined to accord Indian Languages their due place. The primacy of the mother tongue in education and the lives of the people was recognised in our country long before the first major international support for this idea emerged at the UNESCO meeting of specialists in 1951. English, however, was not a foreign language in India in the same sense in which it is in some other non-English speaking countries. In fact, Indian English had begun to be recognised as a variety of English with a distinct identity of its own, such as American English or Australian English. English also assumes importance in the context of the growing recognition in the world today of the ideal of the 'family of man'. English continues to be our largest window to the growing fund of knowledge and scholarship both within and outside the country.

In the light of the national policy on education, teaching English well and effectively, especially in rural schools and in schools that educate the poorer sections of the society, should be given high priority. English also has an important role as a library language. In this context, the Minister called for renewed efforts to evolve methods of teaching that will be effective in ordinary schools and to produce reading materials related to our lives, our scenes and our situations.

Appreciating the work being done by CIEFL in these directions, Mr Chavan expressed the hope that "the Institute will soon find ways to reach most schools and almost all the learners who need English and can supplement their efforts through radio programmes, TV or taped lessons or other more easily accessible aids and instructional materials".

Madras plans special courses for teachers

The Syndicate of the Madras University has decided to start special courses for graduate teachers of higher secondary schools to enable them to qualify for the M.Sc. degree. The courses will be conducted during two summer vacations and one Christmas vacation. The arrangement has been made in consultation with the Directorate of School Education. The courses are to be held in postgraduate affiliated colleges. About 750 to 850 teachers in each of the disciplines of mathematics, physics, chemistry, botany and zoology are likely to benefit by the courses. The graduate teachers will write the examinations of the first and second semesters in April 1982 and third and fourth semesters in April 1983.

The Syndicate also constituted eight review committees for each of the eight autonomous colleges. These will examine in detail the working of the system and report before April 30. The University proposal for a housing scheme for the non-teaching staff was approved. This will benefit about 400 employees. The university will advance about Rs. 40 lakhs to the employees from its pension fund.

The Syndicate decided to set up an organising committee consisting of all its members, prominent educationists, industrialists, and other eminent alumni of the university for celebrating the university's post-centenary silver jubilee.

The Vice-Chancellor, Prof. G.R. Damodaran, said that a proposal for an Indo-Japanese exchange programme in the fields of science, language and literature has been accepted by the Syndicate.

BITS organises symposium on Premchand

To celebrate the Birth Centenary of Munshi Premchand, the BITS organised a symposium on his life and works under the joint auspices of Staff Association and National Integration Samiti. The symposium was inaugurated by Dr R.C. Sharma, Professor of English and Dean, Faculty Division I. In his address Dr Sharma pointed out that Premchand was sensitive to the sufferings of man and stood for human values and fought against the exploitation of the poor by the rich, fully aware at the same time of the weaknesses of the poor. His writing was the cry of an impassioned soul. And it is these qualities that lent a universal appeal to his art and immortalised his writings.

Eminent scholars in the field including Dr Harvansh Lal Sharma, Retired Director, Central Hindi Directorate, Govt. of India and former Vice-Chancellor, Aligarh Muslim University, Dr Vijayendra Snatak, Retired Professor and Head, Department of Hindi, University of Delhi, Dr Raghuvar Dayal Varshneya, Hindi Dept., PGDAV College Delhi. Dr Vishwanath Tripathi, Hindi Dept. University of Delhi, Dr. Tulsi Ram, Professor of English, BITS, Pilani, threw light on different aspects of Premchand's writings.

Dr Harvansh Lal Sharma, who chaired the symposium, pointed out that great literature such as produced by Premchand manifests the universal soul of man. In the present-day world when man's survival is threatened and science posed a danger to human sensibilities, the message of Premchand could prove very beneficial. The other speakers highlighted Premchand's concern to portray man as man and tried to show how through his writings he had championed the cause of the common man under the British subjugation.

Welcoming the learned speakers, Dr. R.C. Shishu, Convener, Talks and Symposia Committee and Executive Member of the Staff Association, pointed out the relevance of the celebration of Premchand's centenary. He said that the social, political, economic and moral problems against which Premchand waged a relentless battle with his pen continued to confront us as before. It would, therefore, be appropriate to deliberate on what he had to say on the solution of these problems. The symposium, which was largely attended, ended with a Vote of Thanks by Sri S. Purushottam, Secretary, National Integration Samiti.

Kanpur VC's visit to educational centres

Dr Hemlata Swarup, Vice-Chancellor, Kanpur University, is visiting International Institute for Labour Studies, Geneva, to acquaint herself with the working of the Institute. She also plans to visit Giesson University in West Germany, UNESCO Institute of Education, Hamburg and also the UNESCO's International Education Institute at Paris.

She will also visit the Institute of Clothing Technology and National Foundation for Educational Research, London. She will be attending ECPR, IPSA workshop on "Political Socialization of Women and Men including the Role of Education and Mass Media." On her way back she will visit Moscow University and Patrice Lumuba University in Russia.

Delhi recognises Safdarjang hospital

Delhi University Academic Council at its last meeting recognised Safdarjang Hospital for clinical teaching of medical students belonging to the University College of Medical Sciences. The recognition came after the subcommittee appointed for the purpose forwarded its recommendations to the Academic Council. It also decided that the doctors of Safdarjung Hospital who fulfilled qualifications to teach, as laid down by the Medical Council of India, will be recognised as teachers by the university.

Madras, Tokyo varsities collaborate in science

Plans for collaborating in science and establishing sister relations between the Madras and Tokyo Universities are being concretised. The Consul-General of Japan in Madras has assured the Vice-Chancellor of the Madras University that he would extend full cooperation for implementing such a proposal. Prof. P.S. Manisundaram, Principal, Regional Engineering College, Tiruchi and member of the Madras University Syndicate claimed that the proposal was "unique" as no university in India has sister relations with any Japanese University. The proposals include that of establishment of a Centre of Indo-Japanese studies in the Madras University. These proposals were being sent to the UGC for clearance.

BITS celebrates international women's day

The 71st International Women's day was celebrated under the auspices of the Community Welfare Unit, BITS, Pilani, Smt. Sita Sharma presided over the function and Dr (Mrs.) Vinodini Varma, the convenor of the programme, welcomed the guests. Prof. T.S.K.V. Iyer, Deputy Director, read out the message and greetings sent by Dr C.R. Mitra, the Director of the Institute. BITS Students' Christian Association played Mother Teresa's special prayers for peace and women. Smt. Pushpa Bhargava, Smt. Indira Mishra and Smt. Meera Banerji in their short speeches explained the significance of the International Women's Day and spoke about the social evils affecting women today. Later, the Unit felicitated Smt. Seema Bose and her fifteen colleagues for the excellent work done by them at the Infant Care Centre being run on the Vidya Vihar campus by the Community Welfare Unit for the benefit of BITS community. Smt. Radha Iyer, Kum. Hemlata Sharma and Sri Jeeta Ram spoke about the activities of the Centre and the excellent work it was doing.

A short cultural programme was also presented on the occasion which included fancy dress competition and songs. Smt. Bose thanked the organisers on behalf of the Centre. She expressed the hope that with the encourgement and support of the community it will continue to flourish.

The function concluded with the presidential remarks by the Chief Guest, who expressed her deep sense of appreciation for the voluntary effort by a group of campus housewives whose missionary zeal has trailed a streak of glory in the realm of social welfare. She also highlighted the important role which women can play in the social life of the community.

Four new Institutes in Sixth plan

The Union Minister for Health, Mr. B. Shankaranand, said in Rajya Sabha that the Government planned to set up four medical institutes during the Sixth Plan. These would be in addition to the twentynine institutes which were already in existence. The Institutes are : the National Institute of Naturopathy at Pune, the National Institute of Unani Medicine, Institute of Ayurvedic Studies and Research at Kerala and the Institute of Medical Sciences in the north-eastern region.

NIS develops eastern centre

The eastern centre of the National Institute of Sports is expected to start functioning from the next academic session. The construction of the building of the centre at Calcutta is in progress. For the NIS southern centre the central government has sanctioned Rs. 2.5 crores. The execution of the southern project is also in progress. Meanwhile Maharashtra and Gujarat have made a request for the NIS western centre in their State. The matter will be considered by the SNIPES shortly.

News from Agril. Varsities

Tewari calls for intensification of farm research

Mr N.D. Tewari, Union Planning Minister, urged the agricultural scientists to step up the research work on engineering of post-harvest technology in order to prevent the sizeable wastage of agricultural commodities in processing, transport and storage. He was speaking at the Indian Agricultural Research Institute. He said that these aspects were essential to minimise the losses as also to bring about greater benefits to the producer and the consumer. Market research was another area which needed emphasis so that the data would help the union and State Governments in taking timely regulatory measures in respect of production programmes, purchases and public distribution policies. This would also help in eliminating to a great extent the middlemen who exploited the producer and the consumer.

Outlining the strategy for agricultural development in the sixth plan, Mr Tiwari said the success of implementing the plan programmes would depend to a large extent on the availability of scientific technology developed through intensive field oriented and need-based research. While there should be continuing emphasis on genetic engineering to evolve high yielding crop varieties of all economic species, top priority should be given to evolving high yielding varieties of pulses and oilseeds. Further crop varieties should not only enable us to utilise sunlight, land and water more efficiently, but also to use the costly inputs like fertiliser and pesticides more appropriately. Besides, he said the problem of breaking yield barriers should be viewed not just in terms of a single crop or farm animal, but of a population of crops and farm animals.

Need for farm technoloy stressed

Dr O.P. Gautam, Director-General, Indian Council of Agricultural Research, while inaugurating the silver jubilee session of the Indian Society of Agronomy, held recently at the Haryana Agricultural University, Hissar, stressed the need to speed up the pace of transfer of agricultural technology from laboratories to farmers. Such a step, he said, would considerably increase agricultural production. He was referring to the energy crisis and in this context underlined the role of animal power in the nation's agricultural system.

Appreciating the role played by agronomists in developing effective dry land farming techniques, Dr Gautam said double cropping was now possible even in those areas where the annual rainfall was just 1200 mm.

Dr. P.S. Lamba, Vice-Chancellor of Haryana Agricultural University, suggested that the system of agricultural education be streamlined in order to produce the right type of scientific and technical manpower. Personnel should be trained for their jobs, taking into account the conditions under which they were expected to work in different areas.

About 150 delegates from various parts of the country participated in the conference. A seminar on crop management was also organised on this occasion.

IARI to establish centre for agro-energy

The agricultural scientists will concentrate more on evolving techniques for saving energy and finding out alternative renewable sources of energy for use in farms. The research on these lines which has already made a small beginning will be intensified after the establishment of the proposed agro-energy centre at the Indian Agricultural Research Institute during the current plan. Dr H.K. Jain, Director of the Institute, said in Delhi that in view of the crisis being faced in the field of energy, in terms of both cost and availability, it was imperative to harness renewable sources and utilise efficiently the non-renewable sources of energy in agriculture. In future a large part of the fertiliser needs of crops would have to be met by fixing atmospheric nitrogen into the soil through the use of bacteria. Solar pumps and wind mills could be used for lifting irrigation water. Biogas provided an alternate source of energy with higher thermal efficiency. The gas was already being used for lighting, cooking and irrigation pumping. A substantial saving in the use of conventional energy sources was possible through improved techniques of operation, careful maintenance and judicious selection of equipment for various agricultural operations.

ICAR for two new farm varsities

The Indian Council of Agricultural Research has agreed to support the establishment of two new agricultural universities in the country—one in Jammu & Kashmir and the other in the tribal area of Bihar.

The Negi committee report on the feasibility of an agricultural university in Jammu and Kashmir has been passed on by the ICAR to the state government for further action. The state is reported to have approached the University Grants Commission for approval of the new university.

The ICAR has also agreed in principle to provide the necessary assistance for the establishment of a new college of agriculture in Manipur. For developing agricultural education facilities in the north-eastern hilly region, the newly established agricultural college in Nagaland is also being assisted by the ICAR. The faculty of agriculture of Banaras Hindu University is proposed to be converted into an institute of agriculture with triple functions of research, education and extension. The ICAR will assist the institute in infrastructure development and in the creation of new posts in various departments. Nearly Rs 39 crores are proposed to be spent during the sixth plan on the National Agricultural Research Project (NARP) launched in 1979 with assistance from the World Bank. The project aims at strengthening the regional research capabilities of agricultural universities.

In accordance with the recent decision taken by the ICAR, all the 21 agricultural universities in the country are now eligible for participating in the NARP. A "project funding committee" has been set up to sanction research projects under this scheme. The committee proposed to identify the agro-climatic zones in each state, rationalise their research infrastructure and suggest the setting up of new research stations or strengthening of the existing ones. Fifteen research sub-projects have recently been sanctioned under the NARP. Besides, nine administrative sub-projects have been approved for strengthening the offices of the directors of research in the participating universities in Haryana, Andhra Pradesh, Tamil Nadu, Madhya Pradesh, Karnataka, Gujarat, Kerala, Rajasthan and Punjab. These schemes involve an outlay of Rs 14.65 crores. Research projects to be carried out under the NARP in agricultural universities in Orissa and Assam are currently under consideration. Research reviews in respect of universities loctaed in Uttar Pradesh, Bihar, Maharashtra and Himachal Pradesh are in progress and their projects are likely to be sanctioned during the current financial year.

Horticultural varsity in Himachal likely

Himachal Pradesh is likely to have a full-fledged horticultural university. The first step for setting up the first horticultural university in the country was taken in 1971 when the Himachal Pradesh Government created an independent department of horticulture. Till now the practice in every Indian State has been to keep horticulture as part of its Agricultural Department. However, the Himachal Pradesh Government realising the importance of horticulture in the State's economy has decided to deviate from the tradition. A further step towards setting up the university was taken in 1976 when 1,347 acres of land was acquired at Oachghat in Solan district to establish Horticultural Complex.

Himachal's economy is mainly dependent on horticulture—fruits, vegetables and vegetable seeds. The difference in the incomes from an acre of apple and that of wheat too tilts the balance in favour of horticulture. An acre of apple yields between Rs 20,000 and Rs. 25,000 a year whereas an acre of wheat brings in only about Rs. 2,000. The 1978-79 apple crop in Himachal Pradesh on 85,543 hectares of land yielded about 137,175 tonnes of fruit. The area under vegetables in the same year was about 9,900 hectares. It yielded a crop worth Rs. 2 crores. The seed production programme of Himachal Pradesh too is yielding dividends, especially the cauliflower seed which the state is now exporting to Denmark and Holland.

Forests in Himachal alone yield an income of about Rs 10 crores to Rs 12 crores to the State exchequer. Besides, forestry provides large-scale employment to the local population. However, even the forestry potential of the State is not being fully exploited. Himachal Pradesh should have at least 60 per cent of its total area under forests. The area actually under forests is 21,763 square kilometres which works out to about 39.1 per cent only.

The soil and climatic conditions of Himachal Pradesh are ideal for having orchards—those of apple, plum, grape and citrus—and growing vegetables because the croping season in the State is the off season in the plains and therefore, the Himachal farmer gets good price and vegetable seeds. Vegetable seed production for the temperate zone was not done in India earlier and the seed was imported at a high cost. But now it is being done in Himachal at a large scale. Besides, these there are forest by-products such as medicinal and aromatic plants, flowers, species, condiments, incense and some species of naturally growing mushroom. All this calls for a full-fledged horticultural university which should do research into horticultural crops, produce better seeds and high-yielding varieties to fully exploit the horticultural potential of Himachal Pradesh.

PAU efforts to diversify rabi crops

The scientists of the Punjab Agricultural University are making concerted efforts to introduce diversification in the rabi crops and provide an alternative, particularly to the wheat crop. Dr S.S. Johl, Director of Research, PAU said that under the diversification programme, maize tried for several years had shown goods promise. He said grain production in the state rose from 55.9 lakh tonnes in 1965-66 to 125 lakh tonnes in 1980-81. There was also major increase in wheat and rice crops. Efforts were being made to develop alternatives to wheat and rice crops in new medicinal and aromatic crops such as coriander, fennel, celery artichoke palmrosa and meon-grass. Within the wheat crop, emphasis was being placed on durum wheats which were resistant to disease and were equitable for export purposes. Recently the university had released a veriety, BWL-5023, of durum wheat.

All India workshop on harvest & post harvest technology

Dr Sukhdev Singh, Vice-Chancellor, Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV) while inaugurating the 8th annual workshop of All India Coordinated ICAR Scheme for studies on harvest and post-harvest technology held at JNKVV, Jabalpur, said that the Agricultural engineers should not loose sight of other disciplines in developing technologies to prevent losses in the foodgrain and other agricultural produce. He said that for prevention of foodgrain losses, the entomologists were the first to show the concern. Then came the biochemists, nutritionists and now it seems to have passed on to the agricultural engineers. But to achieve the objectives, he stressed, multidisciplinary approach be made. The Vice-Chancellor observed that crops like wheat and rice find worldwide use and much work has been done on them. But food items like Mash, Urad, Moong and other pulses which are peculiar to our country needed urgent attention. In pulses and oilseeds we are deficient. Soybean cultivation, which was doing fine in M.P. and has an area target of 1.8 million hectares in the next five years, has yet to enter the diet of the people. He advised the scientists to orient their work to the Indian needs.

Prof. A.C. Pandya, Director of the Central Institute of Agricultural Engineering, Bhopal, in his introductory remarks, spoke about the role of the scheme in developing well-balanced, low-cost, appropriate and location-specific technology. In the 6th plan period, he said, the scheme would have a challenging job of developing technologies on location-specific crops and agricultural wastes for rural industrialisation.

Dr. A Alam, coordinator of the scheme, gave out in his brief report the progress of research work at all the eleven centres located throughout the country and detailed the harvest and post-harvest various aspects of studies made in different cereal, vegetable and other crops.

Efficient use of farm inputs urged

Inaugurating a one-day training camp on kharif crops Dr Amrik Singh Cheema, Vice-Chancellor of the Punjab Agricultural University said that the farmers should also be good managers since the agriculture in the State had become an industry. He advised the farmers to keep strong links with PAU to receive the new farm technology generated here. Dr Cheema said that since the farm inputs like chemical fertilizers and farm machinery had become very costly, the farmers should show greater efficiency in their use. Keeping in view the shortage and increasing prices of oilseeds and pulses, the farmers should give more attention to the cultivation of groundnut, moong, mash and arhar, he added.

The camp was organised at the PAU by the Chief Agricultural Officer, Ludhiana and more than 500 farmers participated in it.

PAU holds refresher course for irrigation engineers

Dr Amrik Singh Cheema, Vice-Chancellor of the Punjab Agricultural University said that though Punjab had more than one lakh tractors and six lakh tube-wells, the service facilities for these machines were very inadequate and the farmers were some times cheated by unskilled mechanics. Dr Cheema further said that there was a need for optimum utilisation of the ground water resources and efficient management of water and energy resources. Dr Cheema disclosed that the PAU would soon appoint district level extension specialist in farm machinery in the State so that the farmers could be properly guided regarding the operation and maintenance of farm machinery. Dr Cheema was addressing a two-day Symposium-cum-Agricultural Engineer Workshop organised by the Department of Soil and Water Engineering of the PAU, in Ludhiana. More than 80 agricultural engineers from all over Punjab attended the workshop. The purpose of holding the workshop is to discuss different aspects of ground water development, tubewells and pumps with the participants and to apprise them of the latest technology generated at the PAU.

Dr S.R. Verma, Dean of the College of Agricultural Engineering indicated the importance of interaction between the field engineers and scientists working in this University. He suggested that a workshop for the agricultural engineers should be made a regular feature. Dr K.S. Nandpuri, Director of Extension Education of the PAU highlighted the technological development of tubewell irrigation in the State. He emphasised the need for improvement in the tubewell efficiency, which at present was about 30 per cent as against the expected efficiency of 50 per cent.

National workshop on seed technology research held at Hissar

The First National Workshop on Seed Technology Research held at the Haryana Agricultural University has recommended that various varieties in different crops should have defining characteristics so that quality seed can be produced by roguing the off types. With regard to seed processing, the scientists recommended that there is a need to have an inventory of spares with some central agencies to take care of maintenance of the equipment needed for seed processing. The information on Karnal Bunt with respect to the importance of secondary dissemination by air and the role of soil borne inoculum needs to be carefully investigated. The need for modification in the seeds act and revision of seed certification standards was also felt. The scientists felt that the problems of hard seeds in grains legume and seed storability of various crops under ambient conditions needed further research. Dr. P.S. Lamba, Vice-Chancellor, Haryana Agricultural University said that H.A.U. today was a leading institution in seed technology and the delegates were much impressed by the excellent work being done in seed production and technology. The University is producing about 50,000 quintals of breeder seed and 10,000 quintals of foundation seed of different crops annually. Dr. Lamba said this University is not only meeting the demand of the State but also supplying the breeder seeds to agencies such as National Seed Corporation, Seed Farms Corporation of India, National Dairy Development Board and even to the private seed growers in the States of Gujarat and Maharashtra. The University has kept 200 acres of land for breeders production extensively and about 1000 acre of land in foundation seed production.

Enhancement of fellowship for M.Sc./Ph.D. students

The ICAR has approved the enhancement of the value of their Jr. Fellowship for M.Sc. students from Rs. 300/- to Rs. 400/- and that of their Sr. Fellowship from Rs. 400/- to Rs. 600/- during the first two years of the Ph.D. programme and Rs. 500/- to Rs. 700/- in the third year onwards of the same programme. Likewise the contingency grant for the Jr. Fellows has been raised from Rs. 750/- to Rs. 1000/- per annum and that for Sr. Fellows from Rs. 1500/- to Rs. 3000/- per annum. The Council was further informed that the ICAR had already secured the concurrence of the Ministry of Finance to the Fellowships awarded, *inter-alia*, by the IARI being revised accordingly and that the IARI fellowships would accordingly be revised effective from 2-10-80 after clearing up the necessary formalities within a very short time. The Academic Council approved the payment of Fellowship at the revised enhanced rates subject to the completion of the necessary formalities. Thereafter the meeting of the Academic Council came to a close with a vote of thanks to the Chair.

Science & Technology

India enters ocean club

Scientists of the National Institute of Oceanography have succeeded in collecting poly-metallic nodules from the ocean, making India the first developing country to do so. Nodules are grey-to-black potato-shaped objects found in large areas of the deep sea bed. They contain nickel, copper, cobalt manganese and iron.

According to Mr. S. Z. Qasim Director of the NIO only the USA, the UK, the USSR, Japan and the Federal Republic of Germany have so far been collecting these nodules. The scientists abroad the NIO research vessel "Gaveshani" carried out extensive shallow profiling and magnetic surveys in the Indian ocean, followed by seabed photography by remote control camera and collected samples using grabs, dredges and boomerang grabs.

Samples of these precious nodules have been hauled up from depths of 4500 metres in a major technological feat marking India's successful entry into the mining of the ocean floor.

India's mineral reserves will increase manifold with NIO's discovery of a vast area of the seabed literally strewn with these potato-sized nodules. The Indian built ship "Gaveshani" discovered the bed of nodules during it's 86th cruise to Mauritius. India is acquiring a bigger researchship from East Germany which will help in further exploration of the seabed.

Science and technology panels constituted

The constitution of a science advisory committee to the Cabinet (SACC) and setting up of a Commission for Additional Sources of Energy (CASE) were announced in the Lok Sabha recently. The CASE will be headed by Prof. M. G. K. Menon, Secretary, Department of Science and Technology and the SACC will have Dr. M. S. Swaminathan, Member, Planning Commission, as its Chairman.

The other members of the energy commission are: Mr. D.V. Kapur, Secretary, Department of Power, Mr. V. B. Eswaran, Secretary, Department of Expenditure, and Dr. O. P. Gautam, Director-General of ICAR (ex-officio) and Mr. A. M. Thomas, Chairman of the Khadi and Village Industries Commission. Mr. Maheshwar Dayal, Adviser, Department of Science and Technology, will be secretary to the commission.

CASE will be responsible for formulating policies and programmes for development of new and renewable sources of energy and co-ordinating and intensifying research and development activities. It would also ensure implementation of the government's policies in regard to all matters concerning new and renewable sources of energy.

The SACC will have 18 members. They are Chairman of Atomic Energy Commission, Secretary, Department of Space, Secretary, Department of Electronics, Scientific Adviser to Defence Minister, Director General of CSIR, Secretary, Department of Environment, Dr. Raja Ramanna, Prof. Rais Ahmed of Aligarh Muslim University, Prof. Devendra Lal of Physical Research Laboratory, Ahmedabad, Prof. C. N. R. Rao of Indian Institute of Science, Dr. M. M. Sharma of University Department of Chemical Technology, Bombay, Mr. K.P.P. Nambiar of Keltron, Trivandrum, Dr. M. N. Dastur of Dastur and Company, Dr. Nityanand of Central Drug Research Institute, Prof. Obaid Siddiqui of Tata Institute of Fundamental Research, Dr. S. R. Valluri of National Aeronautical Laboratory, Prof. R. R. Daniel of Tata Institute of Fundamental Research and Dr. S. Z. Qasim of National Institute of Oceanography. Some more members will be included later.

The committee will be an advisory body to the Cabinet. Besides tendering advice on the formulation of science and technology policy of Government and on the manner of its implementation, it will identify and recommend measures to enhance the country's technological self-reliance and consider policy issues relating to the development and application of science and technology and organisational aspects of S and T organisations.

Degree holders to be surveyed by CSIR

Four million degree holders and technical personnel would be covered in a survey by the Council for Scientific and Industrial Research (CSIR) along with the population census. The survey includes persons having degrees in science, engineering, technology, agriculture, medicine, arts, humanities, commerce as well as diploma and ITI certificates in engineering technological and other professional subjects.

It is estimated that the total stock of such persons in the country at the beginning of 1981 is of the order of ten million. The CSIR survey will collect more data on training, specialisations, and visits abroad. Specialisation through non-academic pursuits have also been emphasised this time. The data on study training and employment abroad being collected this time would provide country-wide details of the study, training and employment.

Awards & Medals

Joshi presents academy awards

Prof. Uma Shankar Joshi, President of the Sahitya Academy said in New Delhi that one hundred outstanding novels from all languages will be translated at least in Hindi. He was presenting Sahitya Academy award for the year 1980 to Nineteen writers and poets in different languages. He said that it would then be possible to arrive at a more valid evaluation in the total context of Indian literature. The works were in many languages but they gave a single impression that of articulation of India's inner life. Each awardee received a token amount of Rs. 5,000 for a literary work considered to be the best in a particular language in the past three years. Those who got the award included : Jogesh Das (Assamese); Samaresh Basu 'Kalkut' (Bengali), Kunwar Viyogi (Dogri) Jayant Pathak (Gujarati), Smt Krishna Sobti (Hindi), K.R. Srinivasa Iyengar (English); Goruru Ramaswami Iyengar (Kannada); Monohar Sardesai (Konkani); Sudhanshu Shekhar Chaudhari (Maithili) Punathil Kunhabulla (Malayalam), Mangesh Padgaonkar (Marathi); Sri Okima Gwynn (Nepali); Ananta Patnaik (Oriya); Sukhpalvir Singh Hasraat (Punjabi); Rameshwar Dayal Shrimali (Rajasthani); P.C. Devassia (Sanskrit); Krishin Khatwani (Sindhi); Kannadhasan (Tamil) and Asloob Ahmed Ansari (Urdu).

IARI scientists honoured

Fourteen scientists of the Indian Agricultural Research Institute (IARI) are recipients of major scientific awards for their outstanding contribution. Mr V.S. Mathur senior wheat breeder at the institute, has been honoured with the Silver Jubilee Commemoration Medal (1982) of the Indian National Science Academy. He has evolved the largest number of high yielding varieties of wheat in the country during the past 15 years. Dr L.M. Joshi, head of the division of mycology and plant pathology in the institute and his associates. including Dr S. Nagarajan, Mr K.D. Srivastava and Dr D.V. Singh have been jointly awarded the Rafi Ahmed Kidwai Memorial Prize for 1978-79 for their outstanding research in the field of wheat diseases. Dr S.B. Hukkeri senior agronomist, Dr. A.K. Sharma, junior scientist, and Mr H.T. Basantani, research assistant, jointly received the Rafi Ahmed Kidwai Memorial Prize 1978-79 for outstanding contributions in the field of irrigation agronomy. Another team of scientists led by Dr S.C. Pakhriyal, senior scientist in the division of genetics, has been the recipient of the Hari Om Ashram Trust Award for 1979 for the outstanding work in the genetic improvement of bajra (millet). Dr N.S. Subba Rao, head of the division of microbiology, has received the P.B. Sarkar award for outstanding work in the field of soil microbiology.

UNIVERSITY OF DELHI

Advt. No. Estab. IV/68/81 **Dated, the 24th March, 1981**

Applications on the prescribed form are invited for the following posts:

Department	Designation
Faculty of Management Studies	: One Professor One Reader
Faculty of Law Campus Law Centre	: Two Readers* One Part-time Lecturer
Political Science	: One Reader
Department of Commerce Main Campus	(i) Two Readers (One in Business Statistics and one in Marketing)
	(ii) One Lecturer (temp. upto 30-9-1982)
South Campus	One Lecturer (temp. upto 15-10-1982)
Chemistry	: One Reader
Operational Research	: One Lecturer
Modern European Languages	: One Lecturer in French One Lecturer in Italian One Part-time Lecturer in Russian
Philosophy	: One Lecturer (temp. till 7-1-1983)
Education	: One Lecturer One Audio-Visual Assistant
Delhi University Library System	: Professional Juniors
Botany	: (i) One Senior Technical Assistant (Photographer) (ii) One Senior Technical Assistant (Technician) (iii) One Museum Curator (iv) Two Laboratory Attendants (One reserved for Scheduled Caste)
Physics	: Seven Laboratory Attendants (2 reserved for Scheduled Caste, 2 for Ex-servicemen)
Anthropology	: One Laboratory Attendant **(reserved for Scheduled Tribe)

****Note** : General category candidates are also eligible to apply but they will be considered only in case of non-availability of suitable ST candidates.

Central Science Facility	: Three Senior Technical Assistants (One reserved for Scheduled Caste, One for Ex-servicemen) Two Workshop Technicians (One reserved for Scheduled Caste)

Note : *Indicates that the posts are being readvertised. Those who have applied in response to the earlier advertisement for these posts need not apply again, but in case they have any additional information to supply, they may do so.

The scales of pay of the posts are :

Professor—Rs. 1500-60-1800-100-2000-125/2-2500

Reader—Rs. 1200-50-1300-60-1900.

Lecturer—Rs. 700-40-1100-50-1600.

Part-time Lecturer in Law/Russian—

Rs. 500/- p.m. (fixed) for work load ranging from 3-6 hours per week.

Rs. 750/- p.m. (fixed) for work load ranging from 7-10 hours per week.

Professional Junior— Rs. 700-40-1100-50-1300.

Andio-visual Assistant— Rs. 425-15-500-15-560-EB-20-640.

Senior Technical Assistant (Photographer), S.T.A. (Technician), S.T.A. and Workshop Technician)— Rs. 550-25-750-EB-30-900

Museum Curator— Rs. 425-15-500-EB-15-560-20-700.

Laboratory Attendant— Rs. 210-4-250-EB-5-270.

All posts, except Part-time Lecturer, carry D.A., C.C.A. and H.R.A. as admissible under the rules in force in the University from time to time.

Essential Qualifications for Professorship

A Scholar of eminence.

Independent published work of high standard and experience of teaching Post-graduate Classes and guiding Research for a considerable period desirable.

Readership

Good academic record with first or high second class Master's Degree in the subject concerned with a Doctor's Degree or equivalent published work.

· Independent published work (in addition to the published work mentioned above) with atleast 5 years' teaching experience in Honours/Post-graduate Classes essential.

Lectureship

(Other than M.E.L. i.e. foreign languages)

Essential

Good academic record with a first or high second class Master's Degree or an equivalent degree of a foreign University in the subject concerned.

Note

Second Class would mean least 50% marks in the subject or equivalent grade.

Desirable

(i) A Doctor's Degree or evidence of Research work of equivalent standard in the subject concerned. (ii) Teaching experience of Degree/Postgraduate Classes.

Provided if a teacher is not a Ph.D./M.Phil./M.Litt. at the time of his/her appointment and does not qualify himself/herself for the award a of Ph.D./M.Phil./M.Litt. degree from a recognised University in the subject which is being taught by him/her within a period of 8 years from the date of his/her appointment or does not give evidence of research work within that period in the subject concerned, he/she shall not be entitled to any future increments after the expiry of the said period of 8 years till such time he/she fulfils the above mentioned requirements.

Part-time Lecturer in Law

Good academic record with a first or high second class Bachelor's or Master's Degree in Law, practice at the Bar for at least 5 years of which at least 3 years should have been in the Trial Courts. Previous teaching experience desirable but not essential.

Note

Part-time teachers will be appointed initially for a period not exceeding one academic year which could be renewed after each academic year with the total tenure of appointment of an incumbent not exceeding 5 years.

Lectureship (including Part-time Lectureship) in Foreign Languages for the Deptt. of M.E.L. (French, Italian & Part-time Lecturer in Russian):

(a) A Doctor's degree or research work of an equally high standard, and

(b) Consistently good academic record with 1st or high second class (B in the seven point scale) Master's degree in a relevant subject or an equivalent degree of a foreign University.

Having regard to the need for developing Inter-University programme, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications perscribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record may be appointed provided he has done one year post M.A. diploma course in the teaching of foreign language concerned from a University, on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within 8 years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation

1. For the purpose of determining high second class, the mid-point between the minimum percentage of marks fixed by a University for award of second division and first division may be taken.
2. For determining consistently good academic record, a candidate should either have an average of 55% of the two examinations prior to Master's degree (irrespective of the marks obtained in any of the two examinations) or 50% marks in each of the two examinations separately.

Audio-Visual Assistant

(a) Minimum Hr. Secondary with Science subjects.

(b) Diploma or certificate course in the use of Audio-Visual equipment organised by NCERT or other recognised bodies.

Professional Juniors

First or second class B.A./B.Sc./B.Com. plus First or second class M.Lib.Sc. Degree;

OR

First or Second Class M.A./M.Sc./M.Com degree and First or Second Class B.Lib.Sc. or Post-graduate Diploma in Library Science.

Senior Technical Assistant (Photographer)

Diploma in Photography from a recognised institution; experience in macro & micro photography; knowledge of preparation of projection slides, documentation, developing, enlarging and printing.

Senior Technical Assistant (Technician)

M.Sc. in Physics with Electronics as one of the special papers or B.Sc. (Hons.) or Diploma in Electronics with 5 years' practical experience in operating and repairing electronic instruments.

Museum Curator

Graduate in Science with Botany/Life Sciences as one of the subjects.

Laboratory Attendants (Botany/Physics/Anthropology)

Should have passed Matriculation or an equivalent examination with science subjects.

Senior Technical Assistant (Central Science Facility)

Diploma in Engineering or Electronics/B.Sc. with 3 years' experience in operation of modern instruments and their repair and maintenance/Assistance in R and D instrumentation (candidates will be tested for their aptitude in instrumentation).

Workshop Technician (Central Science Facility)

Diploma in Mech. Engg. with 5 year's experience in workshop practice and ability to lead and supervise the work of a group. Candidates will have to pass a trade test) .Candidates with additional experience of supervisory work in Mechanical Workshop will be preferred.

SPECIAL/DESIRABLE QUALIFICATIONS FOR

Reader in Political Science

Candidate with Public Administration as specialized field will be given preference.

Lecturer in Operational Research

Knowledge of Computer Programming desirable.

Lecturer in Education

Specialization in Educational Psychology.

Audio-Visual Assistant

(a) Experience of teaching the use of audio-visual aids.

(b) Ability to attend minor repairs.

Professional Juniors

(i) Candidates possessing High Second Class with 55% of marks and above will be preferred.

(ii) Ph.D. in Physics, Chemistry, Mathematics, Zoology or Botany would be an additional desirable qualifications.

Senior Technical Assistant (Technician)

Working knowledge of operating an electron microscope. Knowledge of Photography will be considered as additional qualification.

Museum Curator

Experience of Botanical Lab./Garden/Museum.

Laboratory Attendants (Botany/Physics/Anthropology)

Should have worked in a Laboratory.

The prescribed application form can be had from the Information Section of the University either personally or by sending a self addressed envelope (size 13 cm x 28 cm.) with postage stamps worth Rs. 2.90.

The candidates will have to produce the original documents relating to their age, qualifications, experience, etc. at the time of interview.

Applications **(separate for each post)** accompanied by attested copies of Degrees, other certificates, marksheets, published research articles, etc., should reach the undersigned not later than **25th April**, 1981.

Note

1. It will be open to the University to consider the names of suitable candidates, for teaching posts who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases, in respect of all teaching posts on the recommendation of the Selection Committee.
2. Canvassing in any form by or on behalf of the candidates will disqualify.
3. Candidates from outside Delhi, for teaching posts only, called for interview will be paid to and fro single second class rail fare.
4. The University reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant.

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY

KANPUR

Advertisement No. 6/81

Applications are invited for the following posts in Computer Centre of the Institute in the pay scales noted against each:

1. **Software Engineer—Grade II:**
   Three posts
   Rs. 700-40-900-EB-40-1100-50-1300.
2. **Software Engineer—Grade I:**
   Two posts
   Rs. 1100-50-1600.
3. **Operation Manager—Grade II:**
   One post
   Rs. 1500-60-1800-100-2000.
4. **Computer Maintenance Engineer :**
   One Post
   Rs. 700-40-900-EB-40-1100-50-1300.

Qualifications and Experience

1. **Software Engineer Grade II**

(a) B. Tech. in Computer Science

OR

(b) B. Tech. in any other branch of engineering or M.Sc. in Mathematics, Statistics or Physics. In case of (b) two years relevant experience will be needed in addition.

Relevant Experience: Demonstrated knowledge and experience in assembly level language of a fourth generation multiprogrammed time shared computer and sufficient knowledge of the operating system of such a computer to be able to diagnose the software faults and rectify them towards efficient running of such a computer.

2. **Software Engineer, Grade I**

Qualification and experience equivalent to Grade II plus five years of experience in Grade II level work.

Job Specifications : Developing and maintaining systems software and applications programs. Maintaining and tuning operating systems, utilities, compilers etc. Diagnosing and rectifying software faults towards the efficient running of multiprogrammed time-shared fourth generation Computer Systems. Attending to user requirements for tapes, disc space, accounting etc. Must be able to attend to software faults on the spot on a real time basis. Work can be assigned on a shift duty basis to cover 24 hours of the day including Sundays and holidays.

3. **Operations Manager, Grade II**

Qualifications and experience equivalent to Software Engineer Grade I plus five years experience in Software Engineer Grade I level work. Must have demonstrated supervisory ability in managing a team of at least 10 technical persons in a Computer Centre.

Job Specifications : Participation in the jobs of the software engineers and supervisory responsibility of the software engineers and the operators.

Liaison with Computer Engineers, Software Analysts and users towards efficient running of the system. Supervise procurement of stores, authorise user jobs monitor computer billing. Work can be assigned at any time during 24 hours of the day including Sundays and holidays depending on needs.

4. Computer Maintenance Engineer

B. Tech. in Electronics/Electrical Engineering with Mechanical aptitude and good working knowledge of digital electronics including Integrated Circuits and Elements of Computer Software.

Job Specification : Maintaining Computers and Peripherals. Assistance in development of hardware additions and developments to TDC 316, Micro 78, IBM 1800 and network of these computers.

Note

(a) Applications from persons not having the prescribed qualifications but qualifications which can be deemed to be equivalent to the prescribed qualifications will be considered.

(b) Experience may be relaxed in the case of exceptionally well qualified candidates with demonstrated abilities.

(c) Persons not having the prescribed qualifications and experience for the post applied for but found fit for a lower position, may be considered.

The Computer Centre has a fourth generation time shared DEC 1090 Computer with 28 terminals, 2 card readers, 2 line printers, 3 graphic terminals and a plotter. The memory consists of a core memory of 256 K words and 3 discs of 600 million characters and 3 tape drives. In addition there are IBM 1800, TDC 316 and two Micro 78 computers. The Institute has well stocked Library with more than 2,17,000 volumes and 1800 periodicals.

The Campus facilities include a Primary and Higher Secondary School, a Health Centre, Swimming Pool and a Shopping Centre.

Posts are permanent and carry retirement benefits in the shape of CPF-Scheme, CPF-cum-Gratuity Scheme or GPF-cum-Pension-cum-Gratuity Scheme as may be opted according to rules. The age of retirement is 60 years. During the first year, the appointment will be on probation. Besides pay, posts carry allowances according to the Institute rules which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to the exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare from the place of duty to Kanpur and back by the shortest route.

In the category of Software Engineer Grade II one post will be reserved for SC/ST candidate. In the event of Non-availability of suitable SC/ST candidate, the reserved post would be treated as dereserved.

Applications from within India must be made on prescribed form obtainable free of charge from the Registrar of the Institute by sending a self-addressed unstamped envelope of 25 cm x 10 cm size **latest by March 31, 1981**. Applications should be accompanied by a Postal Order for Rs 7.50 (Re. 1.87 for Scheduled Castes/Tribes candidates).

Applicants from abroad may apply on plain paper enclosing a complete bio-data and names of three referees from whom reference letters may be obtained.

Applicants who are employed in Government, Semi-Government organizations or Institutes, should send their applications through proper channel else they will be required to produce a 'No Objection' certificate from their employers at the time of interview.

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016 (India) **on or before 30th April, 1981**.

ANNAMALAI UNIVERSITY

ANNAMALAINAGAR

Applications are invited for filling up of the following posts of Professors in various Departments in the University in the prescribed form obtainable from the Registrar, Annamalai University, Annamalainagar, 608002 on payment of Rs. 5/- by cash/M.O./Postal Order (not refundable). Completed application forms (with additional five copies) should reach the Registrar on or before 4.00 p.m. on **24th April 1981**.

1. Professor and Head of the Department of English—One Post
2. Professor and Head of the Department of Philosophy—One Post
3. Professor and Head of the Department of History & Politics—One Post.
4. Professor and Head of the Department of Economics—One Post
5. Professor and Head of the Department of Sociology (UGC Post)—One Post
6. Professor and Head of the Department of Zoology—One Post
7. Professor and Head of the Department of Tamil—One Post
8. Professor of Civil Engineering—One Post
9. Professor of Structural Engineering —One Post
10. Professor of Electrical Engineering (UGC Post)—One Post
11. Professor of Chemical Engineering —One Post

Qualification and Experience

Professor

(a) Person possessing a doctorate degree.

(b) He/She should be an eminent scholar with published work of high quality actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

He/She should be an outstanding scholar with established reputation who has made significant contribution to knowledge.

Salary

Rs. 1500-60-1800-100-2000-125/2-2500 plus usual D.A. and H.R.A.

Candidates when called for interview, should appear before the authorities at their own cost. Such of those as are already in service should route their applications through the proper channel.

E. Thangavelu
REGISTRAR-IN-CHARGE

BANARAS HINDU UNIVERSITY

VARANASI-221005

Advertisement No. 38/1980-81

APPLICATIONS are invited for the undermentioned posts. The benefit of Provident Fund/Pension, Dearness Allowances, House Rent Allowance and City Compensatory Allowances are admissible according to University rules. The retirement age of University Employees is 60 years. The appointment will be made on two years probation on all permanent posts. Higher starting salary within the grade is admissible to specially qualified and experienced candidates.

Applications will be entertained on the prescribed form duly supported with a Bank Draft or Crossed Indian Postal Orders for Rs. 7.50 in favour of the Registrar, Banaras Hindu University towards the application fee. Application forms alongwith the leaflet of information will be supplied free of cost by the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005 on receipt of Re. 0.60 paise stamped self-addressed envelope of 23 cm x 10 cm size. Candidates called for interview for these posts will be paid actual Railway fare by the Second Class plus reservation charges for sleeper, if paid, and/or actual Bus fare from the present residence bothways by the shortest route as per University rules. No other expenses will be paid.

Application for each post be sent separately alongwith attested copies of certificates in support of the qualifications and experience mentioned in the application and be addressed to the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005.

Incomplete application in any respect will not be entertained for consideration.

Those who are in service should apply through proper channel. M.O. or Cheque will not be accepted towards the application fee.

For the posts of Lecturers, other things being equal preference will be given to Scheduled Caste/Scheduled Tribes candidates who are considered fit.

Applicants may send their bio-data alongwith attested copies of all the certificates and details on plain paper alongwith the application fee of Rs. 7.50 in Bank Draft/I.P.O. to avoid delay in case they do not get the prescribed form in time.

Note

Number of vacancies are tentative and can vary according to needs.

Last date for receipt of application is APRIL 16,1981.

INSTITUTE OF MEDICAL SCIENCES

1. **Professor of Tuberculosis and Chest Diseases**—(One)
   Grade : Rs. 1500-60-1800-100-2000-125/2-2500 plus NPA as per rules.

Qualifications : Essential

(1) M.B.B.S. or equivalent qualification recognised by the Medical Council of India. (2) M.D. (Tuberculosis)/M.D./M.R.C.P. in Medicine with T.D.D., D.T.D., or D.T.C.D. (3) Teaching experience for five years as Reader in the speciality in a Medical College.

Desirable

(1) Research publications in the subject in standard journal.

2. **READER IN PSYCHIATRY (Bio-Psychiatry)**—(One)
   Grade : Rs. 1200-50-1300-1900 plus N.P.A. as per rules.

Qualifications : Essential

(1) M.B.B.S. or equivalent qualification recognised by the Medical Council of India. (2) M.D. (Psychiatry)/M.D. (Bio-Psychiatry)/M.D. (Psychological Medicine)/Speciality Board of Psychiatry and Neurology (U.S.A.)/M.D./M.R.C.P. in Medicine with Diploma in Psychological Medicine. (3) Three years teaching experience as Lecturer in Psychiatry in a Medical College.

Desirable

Research publications in standard journals.

3. **Lecturer in Radiotherapy and Radiation Medicine**—(One)
   Grade : Rs. 700-40-1100-50-1600 plus N.P.A. as per rules.

Qualifications : Essential

(1) M.B.B.S. or equivalent qualification recognised by the Medical Council of India. (2) M.D. (Radiotherapy), (3) The requisite recognised post-graduate qualification in the subject and three years teaching experience as Tutor/Registrar /Resident in Radiotherapy of which one year should be after Post-Graduate qualification.

Desirable

(1) Experience in using of Radioisotopes in Medicine. (2) Research publications in standard journals.

FACULTIES OF ARTS AND ORIENTAL LEARNING & THEOLOGY

Grade : Lecturer—Rs. 700-40-1100-50-1600.

4. **Lecturer in Journalism & Mass Communication** (Spl. in Radio & Oral Communication (T.V. and Film Journalism) (One) (Faculty of Arts)

Qualifications : Essential

Consistently good academic record with a first or high second class Master's Degree in Communication/Mass Communication/Journalism of an Indian University or an equivalent qualification from a foreign University.

OR

A first or high second class Master's Degree in Social Sciences/Sciences/Humanities with atleast a second class Bachelor's degree or Diploma in Journalism from a recognised Indian University/Post-Graduate Diploma from a recognised National Institute.

Desirable

(1) Teaching experience at College or University level. (2) Work experience in any area of Mass Communication, specially film, T.V. & Radio.

5. **Lecturer in Ancient Indian History, Culture & Archaeology** (Three) (Faculty of Arts)
6. **Lecturer in Hindi** (Five) (Faculty of Arts)
7. **Lecturer in Veda** (One) (Faculty of Oriental Learning & Theology)

Qualifications : Essential

(1) A Doctor's Degree or research work of an equally high standard; and (2) consistently good academic record with a first or high second class (B in the seven point scale) Master's Degree (Acharya Degree in Shuklayajurveda for the post of Lecturer in Veda) in the subject or an equivalent degree of foreign University.

Desirable

(1) Good knowledge of reading the Moolpatha and Vikriti Patha and knowledge of Karmakanda (for the post of Lecturer in Veda only).

Having regard to the need for developing inter-disciplinary programme, the degrees in essential qualification No. 1 and 2 above may be in relevant subject.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualification prescribed in essential qualification No. 2 above.

Provided further that if candidate possessing a Doctor's Degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's Degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation

Candidates for being eligible for recruitment to the post of Lecturer must have a first or high second class (B in the seven point scale) at the Master's level and for determining high second class the mid-point between the minimum percentage of marks fixed by a University for award of second division and first division may be taken and for determining consistently good academic record an average of 55% of the two examinations prior to Master's Degree (irrespective of the marks obtained in any of the two examinations) or 50% marks in each of the two examinations separately.

FACULTY OF SCIENCE

1. **Reader in Biochemistry**—(One)
2. **Reader in Biochemistry**—(Spl. in Metabolism, Neuro-chemistry Membranes or Enzymology (One)
3. **Reader in Chemistry**—(Spl. in Chemical Spectroscopy/Theoretical Chemistry) (One)
   Grade : Rs. 1200-50-1300-60-1900.

Qualifications : Essential

Good academic record with a Doctoral Degree or equivalent published work.

Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years experience of teaching and/or research provided that atleast three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding research work.

Desirable

(1) Capacity for doing independent research and guiding research as evidenced by publications in the field (application for all the above posts of Readers).

(2) (a) Experience of research in Enzymology, Neurochemistry, Biomembranes, Biochemical genetics, Molecular Biology (for the post of Reader in Biochemistry).

(b) Experience of research in Enzymology, Neurochemistry, Biomembranes, Metabolism (for the post of Reader in Biochemistry (Spl. in Metabolism, Neurochemistry Membranes or Enzymology).

Note

Those who have applied earlier in response to Advertisement No. 4/1978-79 for the post of Reader in Biochemistry and in response to Advertisement No. 6/1978-79 for the post of Reader in Biochemistry (Spl. in Metabolism, Neurochemistry Membranes or Enzymology need not apply again but may send their fresh bio-data).

4. **Lecturer in Biochemistry**—(One)
5. **Lecturer in Biochemistry**—(Spl. Metabolism, Neuro-Chemistry, Membranes or Enzymology) (Three)
6. **Lecturer in Chemistry** (Physical) (Two)
7. **Lecturer in Chemistry** (Spl. Chemical Spectroscopy/Theoretical Chemistry) (One)
   Grade : Rs. 700-40-1100-50-1600.

Qualifications : Essential

(1) A Doctor's Degree or research work of an equally high standard; (2) Consistently good academic record with a first or high second class (B in the seven point scale) Master's Degree in the subject or an equivalent degree of a foreign University.

Desirable

(1) Experience of teaching Post-Graduate classes (applicable for all the posts of Lecturers).

(2) Capacity for doing independent research and guiding research as evidenced by publications in the field (applicable for all the posts of Lecturers).

3. (a) Experience of research in Enzymology, Neurochemistry, Biomembranes, Biochemical genetics, Molecular Biology or Nutrition and Physiology (for the post of Lecturer in Biochemistry).

   (b) Experience of research in Enzymology, Neuro-chemistry, Biomembranes, Biochemical genetics, Molecular Biology (for the post of Lecturer in Biochemistry (spl. Metabolism, Neuro-chemistry, Membranes or Enzymology).

   (c) Experience of research in Nuclear and Radiation Chemistry (for the post of Lecturer in Chemistry (Physical).

Note

Those who have applied earlier in response to Advertisement No. 11/1976-77 & 2/1977-78 for the post of Lecturer in Biochemistry and in response to Advertisement No. 6/78-79 for the post of Lecturer in Biochemistry (Spl. Metabolism, Neuro-chemistry, Membranes or Enzymology) need not apply again but may send their fresh biodata.

Having regard to the need for developing inter-disciplinary programme, the degrees in essential qualification No. 1 and 2 above may be in the relevant subject.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualification prescribed in essential qualification No. 2 above.

Provided further that if candidate possessing a Doctor's Degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's Degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation : Candidates for being eligible for recruitment to the post of Lecturer must have a first or high second class (B in the seven point scale) at the Master's level and for determining high second class the mid-point between the minimum percentage of marks fixed by a University for award of second division and first division may be taken and for determining consistently good academic record an average of 55% of the two examinations prior to Master's Degree (irrespective of the marks obtained in any of the two examinations) or 50% marks in each of the two examinations separately.

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY

BOMBAY-400020

Addendum

Please refer to our advertisement which appeared in March 15, 1981 issue of UNIVERSITY NEWS on page 183, the following words be added under E — COLLEGE OF EDUCATION, BOMBAY.

(Post-Graduate Degree in education and Geography.....)

Smt. Kamalini H. Bhansali
REGISTRAR

ALIGARH MUSLIM UNIVERSITY

ALIGARH

Advertisement No. 38/80-81

Applications on the prescribed form are invited for the following posts: "Candidates must possess a Medical qualification included in the first or second schedule of Part II of the third schedule (other than licentiate qualifications) of the Indian Medical Council Act 1956. Holders of educational qualifications included in Part II of the third schedule should fulfil the conditions stipulated in Section 13(3) of the Indian Medical Council Act, 1956. Must possess a Basic University or equivalent qualification entered in Schedules under State/Central Registration Act." (For the posts at S. Nos. 1, 2 & 3).

1. **Lecturers in Anatomy (two posts), Anatomy Department, scale Rs. 700-40-1100-50-1600 plus allowances.**

   Qualifications: M.S. (Anatomy)/ M. Sc. (Anatomy)/Ph.D. Anatomy)/D.Sc (Anatomy). Three years teaching experience as Tutor/Demonstrator in (Anatomy, of which one year should be after postgraduate qualification.

   Desirable: Published work.

2. **Lecturer in Anatomy (Histology) (Plan Post), Anatomy Department, Scale Rs. 700-40-1100-50-1600 plus allowances.**

   Qualifications: M.S. (Anatomy)/ M.Sc. (Anatomy)/Ph.D. (Anatomy)/D.Sc. (Anatomy). Three years teaching experience as Tutor/Demonstrator in Anatomy, of which one year should be after postgraduate qualification.

   Desirable: 1. Published work.
   2. Teaching experience in Histology.

3. **Lecturer in Cardiology, Department of Medicine, scale Rs. 700-40-1100-50-1600 plus allowances.**

   Qualifications: D.M. (Cardiology) The requisite recognised postgraduate qualification in the subject and three years teaching experience as Tutor/Registrar/Resident in Cardiology or a Cardiology Unit in the Deptt. of Medicine, of which one year should be after postgraduate.

   Desirable: Published Research work in the Speciality.

4. **Professor in Chemical Engg. Scale Rs. 1500-60-1800-100-2000-125/2-2500 plus allowances.**

   Qualifications: An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

   OR

   An outstanding engineer/Technologist with established reputation who has made significant contribution to knowledge.

   Field of Specialisation: In Chemical Engineering Plant Design or Petroleum Refinery Engg.

5. **Readers in Chemical Engg. (Three posts) Scale Rs. 1200-50-1300-60-1900 plus allowances.**

   Qualifications: Good academic record with a Dectors Degree in a relevant field. About 5 years experience of teaching and/or research and development. Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in the institution or in an industry. OR

   In the case of persons to be recruited from industry or professional fields, candidate should possess good academic record with recognised professional work of about 7 years which should include innovation and/or research and development.

   Field of Specialisation: In Mass Transfer, Heat Transfer, Fluid Mechanics, Reaction Engg./ Transport Phenomena/Petroleum Tech. to be specialised in atleast two of the above.

6. **Lecturers in Chemical Engg. (Four Posts) scale Rs. 700-40-1100-50-1600 plus allowances.**

   Qualifications

   (a) Master's Degree in appropriate field in Engg./Technology.

   (b) Consistently good academic record with a bachelor's Degree in Engineering/Technology. First class at Bachelor's Degree and/ or Master's Degree level.

   (c) One year's relevant professional experience outside academic/research institutions.

Field of Specialisation: In Fuel Tech., Chemical Tech., Transport Phenomena/Transfer Operation, Chemical Engg. Design.

Having regard to the requirements of emerging fields of Engineering and or developing inter-disciplinary programmes, the requirements of Engineering/Technology degrees may be waived in the cases of otherwise well qualified candidates.

Provided further that if a candidate does not possess Professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a period of five years of his appointment failing which he will not be able to earn future increments, until he fulfils this requirement.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) either personally or by sending a self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is **24th April, 1981.** Incomplete applications and those received late may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single Second Class Railway fare only.

Hamid Ali Khan
REGISTRAR

ALIGARH MUSLIM UNIVERSITY
ALIGARH
Advertisement No. 39/80-81

Applications on the prescribed form are invited for the following posts:

1. **Manager, A.M.U. Press, scale Rs. 1100-50-1600 plus allowances.**

   Qualifications: Must be at least a Matriculate Preference will be given to Graduates. Diploma in Printing Technology from a recognised institution. Ten years experience in technical and supervisory jobs out of which at least three years experience of working in responsible capacity in a Press of repute. Having knowledge of costing of jobs and administration rules, including factory Act and rules, E.S.I., P.F. etc. Preference will be given to those who have worked in Government/Semi Govt. Presses or in a Press of repute. Knowledge of English and Hindi is essential. Preference will be given to those having knowledge of Urdu.

   Age: Not below 30 years and not exceeding 50 years as on the last date of submission of application

   Note: The incumbent would be an employee of AMU Press and not of the Aligarh Muslim University.

2. **Asstt. Registrar, Principal's Office, JN Medical College, scale Rs. 700-40-900-EB-40-1100-50-1300 plus allowances.**

   Qualifications: A Degree from a Statutory Indian or foreign University with at least seven years' experience of academic administration in a responsible supervisory capacity in the University.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) either personally or by sending a self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is **24th April, 1981.** Incomplete applications and those received late may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single Second Class Railway fare only.

Hamid Ali Khan
REGISTRAR

ALIGARH MUSLIM UNIVERSITY
ALIGARH
Advertisement No. 40/80-81

Applications on the prescribed form are invited for the following posts:

1. **Professor of Rural Economics State Bank of India (Temporary but likely to continue) Department of Economics, Scale Rs. 1500-60-1800-100-2000-125/2-2500 plus allowances.**

   Qualifications: (i) A first or a high second class Master's Degree in Economics of an Indian University or an equivalent foreign qualification. (ii) A research degree of a doctorate standard in Economics with specialisation in Rural Economics or published work of a high standard and (ii) At least ten years experience of teaching postgraduate classes in Rural Economics and some experience of guiding research.

   Desirable: Post-Doctoral work in Rural Economics preferably in a foreign University or Institute specialising in the subject.

   Note: 1. The post will not be borne on the University's budget; and
   2. The person appointed will not be entitled to any pensionary benefits. However, in case the person appointed is already on some approved pensionary benefit scheme, necessary contributions towards pensionary benefits will be made.

2. **Readers in Math., Math Section, ZH College of Engg. & Tech. (2 Posts) scale Rs. 1200-50-1300-60-1900 plus allowances.**

   Qualifications: (a) A first or a high second class Master's degree in Maths. of an Indian University or an equivalent foreign qualifications. (b) Ordinarily a research degree of a Doctorate standard or published work of a high standard. (c) Ordinarily 5 years experience of postgraduate teaching or guiding research or of teaching degree classes in Engg.

3. **Lecturers in Maths. (Maths. Sec. (one permanent two temporary) ZH College of Engg. & Tech. Scale Rs. 700-40-1100-50-1600 plus allowances.**

   Qualifications: (a) A Doctor's Degree or research work of an equally high standard; and (b) consistently good academic record with Ist or high second class (B in the seven point scale) Master's Degree in a relevant subject or an equivalent degree of a foreign University.

   Having regard to the need for developing inter-disciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

   Desirable: Experience of teaching undergraduate classes.

4. **Lecturer in Fine Arts (Women's College), scale Rs. 700-40-1100-50-1600 plus allowances.**

   Qualifications: (a) Consistently good academic record with first or high second class (B in the seven point scale) Master's Degree in a relevant subject or an equivalent degree or Diploma recognised by the University; and

   (b) Two years research or professional experience or evidence of creative work and achievement in his field of specialisation or a combined research and professional experienee of three years in the field as an artist of outstanding talent. OR

   A traditional or a professional artist with highly commendable professionable achievement in the subject concerned.

5. **Lecturer in Library Science (two posts) (temporary) scale Rs. 700-40-1100-50-1600 plus allowances.**

   Qualifications: (a) A Doctor's Degree or published work of an equally high standard. (b) Consistently good academic record with Ist or high second class (B+in the seven point scale) Master's Degree in the relevant subject or an equivalent degree of a foreign University.

   Desirable: At least one year experience of teaching in Library Science to Graduate/Post-graduate classes.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) either personally or by sending a self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is **24th April 1981.** Incomplete applications and those received late may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single Second Class Railway fare only.

Hamid Ali Khan
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY

DELHI

Hauz Khas : New Delhi-110016

Advertisement No. 5/81

Applications are invited for the following posts under the Department/Centres and areas/specialisations as indicated against each :

DEPARTMENT OF APPLIED MECHANICS : Assistant Professor/Lecturer—Solid Mechanics, Fluid Mechanics, Design and Systems Engineering, Phase Transformation and strengthening Mechanisms.

DEPARTMENT OF CHEMICAL ENGINEERING : Professor and Lecturer—Reaction Engineering, Transfer Processes, Process Plant Design, Process Dynamics, Simmulation & Control.

DEPARTMENT OF CHEMISTRY : Assistant Professor, Lecturer—Biochemistry, Inorganic, Organic and Physical Chemistry.

DEPARTMENT OF CIVIL ENGINEERING : Assistant Professor : Soil Mechanics, Structures, Transportation, Water Resources.

DEPARTMENT OF ELECTRICAL ENGINEERING : Professor—Communication Engineering, Computer Technology and Integrated Electronics & Circuits, Control Engg. For CD Cell: Any branch of Elect. Engg. except Bio-medical Engg. with two years' experience in curriculum development work.

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES : Assistant Professor/Lecturer : Psychology, English, Sociology.

DEPARTMENT OF MATHEMATICS : Lecturer : Computer Science and Statistics.

CENTRE FOR ENERGY STUDIES: Professor— Electrical Energy Systems. **Principal Scientific Officer, Lecturer**— Solar Thermal applications and/or Energy Conservation. **Assistant Professor** : Solar Energy application, MHD Power Generation, Laser Induced Fusion, Energy Conservation.

CENTRE FOR MATERIAL SCIENCE AND TECHNOLOGY : Assistant Professor/Lecturer : Building Materials. **Lecturer/SSO II/Design Engineer**— Plastic Process Equipment and Mould Design. **Research Associate** : Polymer Science and Technology, Solid State and Electronic materials.

CENTRE FOR SYSTEMS & MANAGEMENT STUDIES: Assistant Professor : Managerial Economics.

CENTRE FOR RURAL DEVELOPMENT AND APPROPRIATE TECHNOLOGY : Assistant Prof./Lecturer/SSO I/SSO II—Any discipline with ability and commitment for Rural Development or Development of Appropriate Technology.

BIO-CHEMICAL ENGINEERING RESEARCH CENTRE : Professor—Microbiological Process development, bioreactor design and bioenergy. **Assistant Professor** : Microbiological Engineering and Enzyme Engineering, Applied Microbiology with Microbial Biochemistry and Genetics or Enzyme Technology. **Lecturer**—Microbiological and bioconversion processes. **SSO II**—Microbial Biochemistry and genetics. **Research Associate** : Biochemical Engineering, Waste Treatment, Industrial Microbiology, Microbial genetics.

INDUSTRIAL TRIBOLOGY MACHINE DYNAMICS AND MAINTENANCE ENGINEERING CENTRE: Professor/Chief Design Engineer : Wear Boundary lubrication and failure analysis, Maintenance management, Design and Optimisation and condition monitoring of thermal plants. **Assistant Professor/Senior Design Engineer, Lecturer/Design Engineer**— In addition to above specialisation the other areas are performance evaluation and testing of Tribo-systems, Spectrometer and Chemical Instrumentation, Data Processing and Computer.

SCANNING ELECTRON MICROSCOPY LABORATORY : SSO I/II— 5/2 years' experience in running a scanning and/or transmission electron microscope facility. Qualifications and/or experience relaxable.

INSTRUMENT DESIGN DEVELOPMENT CENTRE : Professor/Chief Design Engineer Mechanical development and fabrication, Mechanical design and Instrumentation, Electronic Measurement and Control. **Assistant Professor/Senior Design Engineer**— Mechanical development and fabrication, Mechanical Design and Instrumentation.

COMPUTER CENTRE : Assistant Professor— System Simulation, Computability, Theory and Programming Languages, Operating Systems, Computer Graphics, Switching and Automata Theory, Numerical Analysis and Operation Research. **Senior Programmer**— Computer Science, System Programming. **System Operator**— Computer Operations and knowledge of higher level languages. **Software Librarian**— Developing discs and/or magnetic tape system. **Junior Programmer**— Application/System Software.

PLANNING UNIT : Principal Scientific Officer, Information Officer

LIBRARY : Deputy Librarian, Assistant Librarian (Reserved for SC/ST)

PAY SCALES AND MINIMUM QUALIFICATIONS

A. ENGINEERING & TECHNOLOGY : Professor—(1500-2500) An eminent scholar. 10 years experience including guiding research at doctoral level OR An outstanding Engineer/Technologist with established reputation and significant contribution to knowledge. **Assistant Professor**—(1200-1900) Good academic record with Ph.D./equivalent research published work or design/development work of high order. 5 years experience OR Good academic record with recognised work in industry/professional fields. **Lecturer**—(700-1600) Good academic record with Master's degree. One year relevant professional experience outside academic/research Institution. Experience relaxable conditionally.

B. SCIENCE/HUMANITIES : Professor/Asstt. Prof./Lecturer — Good Master's degree/Doctorate Degree or equivalent published work. 7-10/5/2 years teaching research and industry experience.

OTHERS : Chief Design Engineer—(1500-2000) Master's Degree with 10-12 years experience. **Principal Scientific Officer** (1500-2000) Good Master's degree with 10 years relevant experience, **Senior Design Engineer/Senior Scientific Officer I** (1100-1600)—Good degree in Engg. or Master's degree in the field with 5 years experience. **Design Engineer/Senior Scientific Officer II** (700-1300) Good degree in Engg./M.Sc. in the field. Experience 5/2 years. **Senior Programmer/System Operator/Software Librarian** (700-1300) **Junior Programmer** (650-960) Master's degree in Engg. with 3/1 years experience or Master's degree in Mathematics/Applied Science or Bachelor's degree in Engg. and 5/3/2 years experience. **Information Officer** (650-1200) Bachelor's Degree in Engg/other subject with 2/10 years relevant experience. Diploma in journalism. **Reprographic Officer** : (1100-1600) Degree in Electronics or Mechanical Engg. or Master's Degree in Physics. 5 years experience. **Deputy Librarian** (1100-1600) (Reserved for SC/ST) 1st or 2nd class MA/M.Sc./M.Com. plus Ist or 2nd class B.Lib. science or Diploma in Lib. Science. (M.Lib. preferred) 7 years experience in Library. **Assistant Librarian** (700-1300) (Reserved for SC/ST). As for Deputy Librarian or I/II class B.A./B.Sc./B.Com. plus Ist class M.Lib. Sc. at least 2 years experience in Academic Library. **Research Associate** : (Consolidated Rs. 1000/- to 1400/-) Ph.D.

GENERAL

Allowances at Central Government rates. Candidates called for interview and entitled to IInd class rail fare. Reservation for Scheduled Castes/Tribes candidates, as per Government of India rules, except for Professor and Assistant Professor. I.P.O. for Rs. 7.50 (Re. 1.87 for SC/ST candidates). 10 copies of list of publications to accompany the application.

Application forms and detailed information regarding qualifications and experience can be had from Assistant Registrar (Estt-I) by sending self-addressed stamped (75 paise) envelope. Last date of receipt of request for application forms is **20th April, 1981**. Last date of receipt of completed application forms **is 27th April, 1981 (9th May, 1981** for candidates abroad).

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Arvinder Singh. A study of extroversion neuroticism, psychoticism and adjustment of the murderers. Panjab University.

Sociology

1. Mohanty, Samarendra. Reconstruction of status and new status symbols in the capital town of Orissa : A comparative study of the two faces of Bhubaneswar, old and new. Utkal University.

Political Science

1. Arora, Om Prakash. Methods and techniques of recruitment to the Indian Administrative Service since Independence. University of Delhi.

Economics

1. Goyal, D.K. A techno-economic study of small scale engineering industries of district Saharanpur. University of Roorkee.
2. Rajman Singh. Sugar industry in Eastern U.P. University of Gorakhpur.
3. Tripathi, Chandra Prakash. Dispersal of industrial activities in Eastern U.P. during Plan Period. University of Gorakhpur.

Public Administration

1. Limaye, Hemchandra Nagesh. A comparative study of formulation and implementation of developmental plans and programmes in Maharashtra (Jalgaon District) and Madhya Pradesh (Khandwa District). University of Saugar.

Education

1. Abha Rani. Impact of idealistic thought on Indian education with special reference to the contribution of Tagore, Aurobindo and Gandhi. University of Gorakhpur.
2. Goyal, Jagdish C. A study of the relationship among attitudes, job satisfaction, adjustment and professional interests of teacher educators in India. University of Delhi.
3. Jain, Dhiraj Kumar. A studv of significant correlates of high school failures in Mathematics and English with special reference to Jammu Division. University of Jammu.
4. Khandewale, Shriram Shankarrao. Construction and standardization of achievement test in physics for class IX in Vidarbha Region. Nagpur University.
5. Khanna, Pratibha. A study of W.H. Kilpatrick as an educational philosopher. University of Gorakhpur.
6. Mohan Rao, P. A critical studv of the implementation of some innovations in higher education in the Andhra State. M.S. University of Baroda.
7. Roshiah, Rufus John. A critical study of the perceptions of college communities about the desirability and feasibilitv of introducing semester system in their colleges in the city of Madras. M.S. University of Baroda.
8. Satyavati, Arnepalli. A study of process in adoption and discontinuance of innovations in schools. M.S. University of Baroda.
9. Sharma, Savita. Expectancies of urban women from continuing education. Panjab University.
10. Soumyendu, Hom Chaudhury. An analytical study of the correlates of academic performance of college students (Tribal) of Mizoram. M.S. University of Baroda.
11. Thangam, Neelakantan. An experimental study of classroom climate. M.S. University of Baroda.

HUMANITIES

Philosophy

1. Sentina, Krishna Della. A few Tibetan Buddhist Dieties. University of Delhi.

Literature

English

1. Aoley, Prakash Vithalrao. Sources of transcendentalism in Ralph Waldo Emerson. Nagpur University.
2. Bhardwaj, Ram Kumar. The mythical element in the fiction of D.H. Lawrence. University of Delhi.
3. Kanda, K.C. The two worlds of Tennyson : A study of internal conflict in the poems of Tennyson. University of Delhi.
4. Lamba, Raja Bikram Pal Singh. Development of Graham Greene as a novelist from The Man Within to The Commedians. University of Delhi.
5. Raghavan, Hema V. Rebels and exiles : A study of Samuel Beckett's plays. University of Delhi.
6. Raval, Rajankumar Ramubhai. Treatment the sublime in Byron and Turnor : Some aesthetic and thematic parallels. M.S. University of Baroda.
7. Singla, Om Parkash. Auden's quest for values. Panjab University.
8. Srivastava, Tara Chandra. Hardy's determinism. University of Gorakhpur.
9. Subherwal, Meera. Art of Katherine Anne Porter. Panjab University.

Sanskrit

1. Mohan, Jyotsna. Kavyapradipa : Ek adhyayan. University of Delhi.
2. Ratan Lal. A study of the commentary of Narayana on the Naishdhiyacaritam. University of Delhi.
3. Tripathi, Ram Vyash. Champu evam aitihasik kavyon kee parampara mein Vikramakbhudya : Ek adhyayan. University of Gorakhpur.
4. Upadhyaya, Raj Narain. Sanskrit natya sahitya mein dim roopak : Ek adhyayan. University of Gorakhpur.
5. Vikram Kumar. Swami Dayananda krit Snskarvidhih Vivahigri-hashramaprakaranyoradhyanam. Panjab University.

Punjabi

1. Darshan Kaur. Punjabi historical novel upto 1960. University of Delhi.

Hindi

1. Asha Rani. Hindi upanyas : Rachna vidhan, swarup aur vikas. Panjab University.
2. Kamla Devi. Tulsi kavya mein rupak tatwa. University of Delhi.
3. Sharma, Sarla. Rajput chitrakala shaileeyan aur ritikaleen Hindi kavya. Panjab University.
4. Tailang, Rakesh Gokulanand. Lakshminarayanlal aur unka natya sahitya. M.S. University of Baroda.
5. Virmal, Badri Prasad. Pt. Makhan Lal Chaturvedi ka vyaktitv evam krititv : Rashtriya chetana ke vishisht sandarbh mein. University of Indore.

Marathi

1. Gajbhiye, Anil. Dalit sahityache sarvangin mulyapan. University of Indore.

Geography

1. Pandey, Shri Kant. Land utilization of Pharenda Tahsil. University of Gorakhpur.
2. Ram Avadh. Awadh Region : A study in cultural geography. University of Gorakhpur.
3. Singh, Udai Pratap. Population resource balance : A case study in Tahsil Samempur, Distt. Deoria. University of Gorakhpur.

History

1. Gulati, Gopal Dass. Northwest Frontier during 13th and 14th centuries. University of Delhi.
2. Prajapati, Hira Lal. Land revenue system and administration in Sagar District, 1861-1917. University of Saugar.

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from periodicals received in AIU Library during March, 1981

EDUCATIONAL PHILOSOPHY

Banner, William Angusnts. "The moral philosopher looks at values education". *New Directions for Higher Education* 8(3); 1980: 9-15.

Dearden, R.F. "What is general about general education?" *Oxford Review of Education* 6(3); 1980: 279-88.

Devanesan, Chandran. "Selectivity and egalitarianism". *New Frontiers in Education* 10(3); July-Sept. 80: 71-7.

Elvin, Lionel. "Individuality and education". *British Journal of Educational Studies* 28(2); June 80: 87-99.

EDUCATIONAL PSYCHOLOGY

Devanesan, Chandran. "Motivation and curricular relevance in the context of college autonomy". *New Frontiers in Education* 10(2); Apr-June 80 : 44-51.

Mehdi, Baqer. "Socio-psychological factors in creativity among school children". *ICSSR Research Abstracts Quarterly* 8(1); Jan-Mar. 79: 51-69.

Thomas, John W. "Agency and achievement : Self management and self regard". *Review of Educational Research* 50(2); Summer 80: 213-40.

Whitelay, John and others. "Research on the development of moral reasoning of college students". *New Directions for Higher Education* 8(3); 1980: 35-44.

EDUCATIONAL SOCIOLOGY

"BRAIN DRAIN: If you can't stop it, tax it". *Economic and Political Weekly* 16(8); 21 Feb 81: 268.

Miller, Patricia Y and Simon, William. "Do youth really want to work: A comparison of the work values and job perceptions of younger and older men". *Youth and Society* 10(4); June 79: 379-404.

Whiteley, John M. "Extracurricular influences on the moral development of college students". *New Directions for Higher Education* 8(3); 1980: 45-50.

EDUCATIONAL PLANNING

Green, Alan C. "Environmental management : The new emphasis". *New Directions for Higher Education* 8(2); 1980: 13-18.

Howe, Harold. "Planning for the 1980s : The context". *New Directions for Higher Education* 8(2); 1980: 1-5.

Inbar, Dan E. "Educational planning: A review and a plea". *Review of Educational Research* 50(3); Fall 80: 377-92.

Sethu, K.K. "Some thoughts on the 10+2 system". *Education Quarterly* 32(2); Apr. 80: 30-5.

EDUCATIONAL ADMINISTRATION

Darji, D.R. and Purohit, D.K. Sharma. "Towards education management". *Education Quarterly* 32(2); Apr. 80: 8-12.

Heredia, Rudolf C. "Structure and performance of college education in India: An organisational analysis of arts and science colleges in Bombay". *New Frontiers in Education* 10(2); Apr.-June 80: 21-33.

Rao, Radha C. and Sen, Falguni K. "Management process in scientific research laboratories". *ICSSR Research Abstracts Quarterly* 8(1); Jan-Mar. 79: 1-13.

Thangaraj, M.A. "Preparing a college for autonomy". *New Frontiers in Education* 10(2); Apr.-June 80: 34-43.

CURRICULUM

Divakaran, R. "A framework for environmental education: An overview". *New Frontiers in Education* 10(2); Apr.-June 80: 14-20.

Regional Seminar on Technical and Vocational Education in Asia and Oceania, Singapore, 1979. "Recommendations". *Bulletin of the Unesco Regional Office for Education in Asia and Oceania* (21); June 80: 303-14.

TEACHING

Gregory, I.D. "How good is your micro-teaching programme ?" *British Journal of Educational Technology* 11(2); May 80: 123-6.

EDUCATIONAL TECHNOLOGY

Deshmukh, M.N. "Educational technology for creative education". *Education Quarterly* 32(2); Apr. 80: 13-17.

EVALUATION

Bloom, Benjamin S. "The new direction in educational research: Alterable variables". *New Directions for Testing and Measurement* (5); 1980: 17-30.

Lienhardt, Gaea. "Modeling and measuring educational treatment in evaluation". *Review of Educational Research* 50(3); Fall 80: 393-420.

Madaus, George F. and McDonagh, John T. "Minimum competency testing: Unexamined assumptions and unexplored negative outcomes". *New Directions for Testing and Measurement*(3); 1979: 1-14.

Puhan, Biranchi N. "Relationship between difficulty level and internal consistency of item". *Education Quarterly* 32(2); Apr. 80: 21-2.

Sisodia, M.L., Natarajan, V. and Patni, G.C. "An analysis of question bank in mathematics". *Journal of Higher Education* (Delhi) 4(3); Spring 79: 392-400.

ECONOMICS OF EDUCATION

Bareither, Harlan D. "Facilities utilisation". *New Directions for Higher Education* 8(2); 1980: 55-56.

Sen, Asoke. "Economy in education". *Education Quarterly* 32(2); Apr. 80: 6-7.

Zachar, Sy. "Space costing in colleges and universities". *New Directions for Higher Education* 8(2); 1980: 81-91.

ADULT EDUCATION

Sakamoto, Takashi and Fujita, Kenji. "The present state of the University of the Air project in Japan". *Overseas Universities* (27); Sept. 80; 26-35.

Sinha, Dharni P. "Adult education and development: Managerial challenge". *ASCI Centre for Educational Policy and Management Bulletin* 6(1); July 80: 15-20.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

Adiseshiah, Malcolm S. "Issues in the national policy on education". *New Frontiers in Education* 10(3); July-Sept 80: 14-24.

Dow, Kwong Lee. "Into the 1980s: Educational change in Australia". *Comparative Education* 16(3); Oct 80: 245-55.

Flather, Paul. "Oriental mysteries that elude modern planners". *Times Higher Education Supplement* (434); 27 Feb 81: 7.

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P.K. Mukerjee
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R. Rath
HEAD

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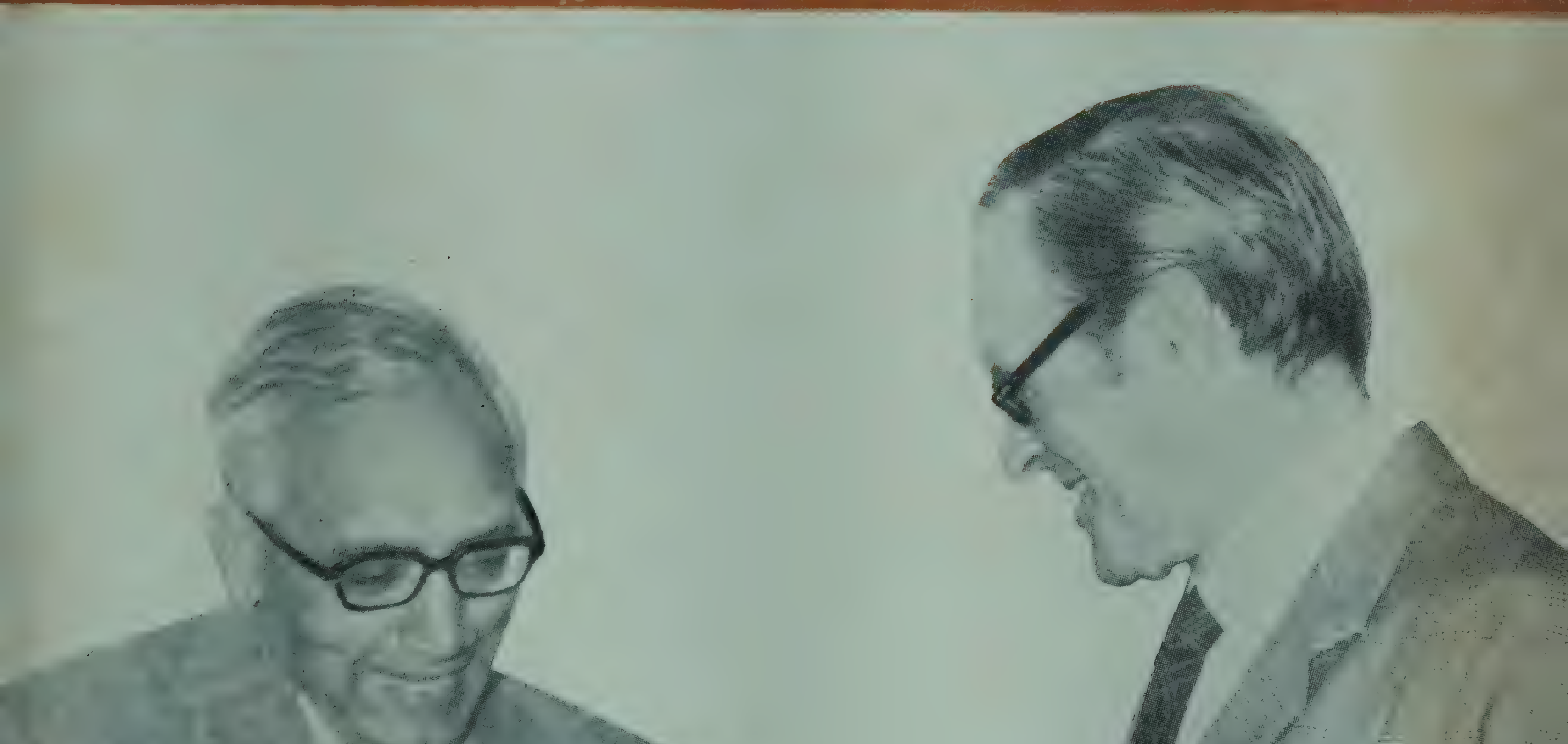

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UNIVERSITY NEWS

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Editor: ANJNI KUMAR

Science and Technology in the Eighties

B.M. Udgaonkar*

The seventies were an eventful decade for science and technology (S & T) in India. There were some significant achievements as in the case of atomic energy, space, agriculture and offshore engineering. There were uncertain and halting steps towards S & T planning, which aroused high expectations that were not to be fulfilled. And in the absence of the necessary planning and followup machinery, there were also many lapses from the point of view of self-reliance. What do we learn from these so that Indian S & T may take off in the eighties?

The decade saw the consolidation of the gains in agriculture, in particular in respect of cereals in the irrigated areas—to an extent that the country could tide over a rather bad drought year without a serious loss of production. Where tasks were well-defined and resources allocated, our scientists and technologists have been able to deliver the goods.

The latest examples have been the successful take-off of SLV-3 and the launching of the Rohini satellite, and the rapid development of the design and fabrication capability for offshore platforms, in the wake of the discovery of oil and gas in the Bombay High and elsewhere. The Prime Minister recently expressed her confidence in Indian S & T capability in the words: "India can achieve whatever goal she sets for herself."

The beginning of the decade saw the creation of a National Committee on Science and Technology (N.C.S.T.), charged with the responsibility of preparation and continuous updating of national S & T plans—both Five Year Plans and perspective plans—in close cooperation with the Planning Commission. The N.C.S.T. produced the S & T plan, 1974-79, which was the result of a unique exercise involving large-scale participation of the scientific community around the country through 24 sectoral panels.

Though some components of the S & T Plan no doubt got implemented (largely depending upon the accident of a committed person involved with the relevant panel later having an executive responsibility for the sector), on the whole the N.C.S.T. Plan for 1974-1979 met a sad fate.

It has been remarked that while there was enthusiastic participation of scientists in the N.C.S.T. exercise of 1973, there was only reluctant participants from the ministries, and the ministries' plans often did not coincide with the N.C.S.T. Plan. The result can be seen from the skewness of allocations

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**Sr. Professor, Tata Institute of Fundamental Research, Bombay.*

in different sectors over the years, and the fact that S & T efforts in several important sectors are not at all commensurate with the magnitude of the economic activity or the service tasks in those sectors.

It is most unfortunate that our decision-making system has not yet adequately realised that S & T planning is much more than providing resources to some major scientific agencies and doling out money to some research laboratories or for some research schemes here and there: A goal-oriented and time-bound approach to S & T capability building and its ulitisation is badly needed in several key sectors such as fertilisers, heavy electricals, electronics and communications, steel, aluminium, petrochemicals, drugs, etc. In particular, there has to be a correlation between the investment and production decisions on the one hand, and the S & T decisions and activities on the other.

There is a gradual growth of inhouse research and development (R & D) laboratories in many public sector undertakings. This is welcome. But the R & D Directors must be given a status on the Boards of Directors, so as to ensure this correlation and the commitment of all concerned.

There has to be a firm commitment to associate appropriate national R & D laboratories and consultancy engineering and design organisations with the import of know-how, and along with it a commitment to ensure scale of investment in R & D that is necessary for the absorption of the imported know-how, and subsequently for its adaptation, improvement and conversion into new technologies and products, competitive on the international market. There has to be a National Register of Foreign Collaborations, one of whose functions would be to ensure the above follow-up.

The linkages between S & T institutions and industry have to be strengthened. Development banks too could play an important role in promoting S & T. There is a need for linkages between them and the S & T—particular through the appointment of scientists and technologists to the Boards of Directors of these financial institutions, and these institutions nominating scientists and technologists to the Boards of Directors of enterprises to which they extend substantial financial resources.

We are at a stage of development in S & T and industry, where such a multi-prong attack could pay rich dividends. In its absence, self-reliance will continue to be a casualty.

The Prime Minister has recently remarked: "Self-reliance must be at the very heart of S & T planning. There can be other strategy for a country of our size and endowments. While we all readily pay obeisance to this concept, there are too many and too frequent lapses."

A commitment to self-reliance demands a long-term perspective regarding the strategy for the development of S & T in key economic sectors. It demands that local expertise, when available must be utilised so as to strengthen it through challenging tasks. It demands that the prime contractor of any project must be Indian.

In this context, it is difficult to understand why, for example, an engineering organisation which has successfully built a refinery or a petrochemical plant or a fertiliser plant is not given more challenging tasks on a continuing basis. And if a reputed national consultancy and design organisation is willing to provide guarantees for an indigenous route, why does one prefer an old foreign technology for a low temperature carbonisation plant? And coal utilisation is an area that is going to assume an increasing importance in the eighties.

There unfortunately continues to be a tendency to give prime contracts to foreign companies—as in the case of the fertiliser plants based on Bombay High gas. The justification for a tendency to enter into umbrella-type agreements in an important sector like heavy electricals is also not clear. Fertilisers and heavy electricals are examples of areas in which the very large size of domestic market can become the spring-board for large-scale exports of both products and technology.

There are other areas which are going to assume increasing importance in the coming decades. They include alternative energy sources, bio-technology, thermo-nuclear fusion and exploitation of sea-bed resources. A concerted strategy in these areas has to be worked out. This may imply the creation of new goal-oriented institutes. A country of continental size like ours also needs a few more institutes of fundamental research, carried out at the highest international levels.

The national R & D expenditure has no doubt been growing during the last decade. But it has been at the level of only 0.60-0.65 per cent of the G.N.P. for several years—compared to the target of one per cent of G.N.P. set by the N.C.S.T. in 1973, and to the 2-3 per cent which all industrialised countries spend. Every effort must be made to reach the target of 1 per cent of G.N.P. at least by the end of the decade, preferably earlier.

There are increasing popular expectations from S & T: (a) with regard to fulfilment of basic needs of large numbers who live below the poverty line, and (b) with regard to self-reliance in key economic sectors. Neither of these are adequately met today. With regard to the former, it has to be realised that the problem is not so much one of research and discovery of new knowledge, but one of using existing knowledge possibly with some adaptations. This calls for a commitment of financial, administrative and organisational resources on the requisite scale. It is, therefore, a problem of social priorities and political will. It is not a problem of S & T per se.

The problem of improving the agricultural productivity of U.P. and Bihar to the level of Punjab and Haryana is also a problem that has important socio-political dimensions.

The problem of technological self-reliance is one of effective planning and implementation. and of commitment. On the other hand, the present

(*Continued on page 219*)

29 MAY 1980
C.F.T.R.I., MYSOR

Reforming Examination System

D. Punalekar*

For last two decades, the examination system has been the subject of a good deal of debate and discussion. The crux of this exercise is that the traditional or old system of examination is in need of some changes or reform. Any examination is a mode of measuring the performance or learning achievements of the students in the academic field. Examination is one of the vital aspects of the educational system. The other two smportant aspects preceding the above one are teaching and learning. These two processes are closely associated with the system of examination. What is important in this educational process is the unity of these three functions or processes. Judged by this rationale, we observe that the traditional system of examination failed to bring about this unity or integration whereas the students were taught some subject or subjects for a period from one year to three years, the examination which came at the end of this period was suffered to assess what the students had learnt during this period. As a result the old or conventional method of examination relied more on the memorising ability of the students. The students developed habits of cramming and reproducing what they had painfully memorised without much interest or reflection. Such examination obviously failed to measure satisfactorily the more important facets of the students' intellectual development including their analytical ability, or their capacity of comprehension, etc. In brief, such a method of examination lacked the means to ascertain correctly the standing of the students in the academic field. Also, there were other disadvantages inherent in this system. The students felt less enthused or activated in their studies throughout the academic year. Their sense of wonder and curiosity were suppressed. The students who could not appear for an examination at a given point of time had to suffer heavy losses and they felt frustrated. These drawbacks induced the educational authorities to find out ways and means of modifying the conventional system of examination. As a result, a great many varieties of experimental methods came into operation.

Types of experimental methods

The various types of experimental methods adopted by different universities for making improvements in their examination system were as follow:

(1) Question Bank
(2) Internal Assessment
(3) Grading System

We may now briefly discuss the basic characteristics of each one of these methods.

Question bank

The Question Bank is a pool or reservoir of questions. The questions included in this Question Bank conform to certain predetermined standards. These standards demand that, (i) the questions should be in harmony with the objectives to be tested; (ii) the questions should be clear and unambiguous. They should be worded in a simple and understandable language; and (iii) the questions should be independent, i. e., they should not overlap the area covered by other questions.

The banking of questions is helpful in many ways. It helps in removing uncertainty and ambiguity. It also facilitates a wider coverage of the syllabus. The system of Question Bank ensures setting up of better question papers with a greater measure of validity and reliability. A question paper drawn with the help of this bank system helps to meet most of the educational objectives such as the assessment of objective knowledge and the abilities of comprehension, application, synthesis, etc. that the students have acquired or developed during the particular period of study.

Internal assessment

Internal assessment covers the academic activities of the students within the educational institution wherein they study throughout the year. Their performance in the class-room, library or at home are assessed internally. The principal feature of this method is continuous evaluation. It is internal in the sense that it is conducted by only those teachers who teach the subject and this makes possible close interaction between teachers and students. The students are guided continuously by their teachers in their work. This helps bring about an improvement in teaching and syllabus. It also enables the teachers to test certain skills and abilities that remain untested by any other method. Thus, internal assessment constitutes an integral part of the teaching-learning process.

Grading system

The grading system is the third important reform measure. It signifies departure from the traditional system of awarding marks. It removes some of the defects and deficiencies found in the marking system. The marking system is subject to considerable arbitrariness and imprecision. It becomes necessary that students be evaluated not only against some absolute standards of performance but also in relation to the performance of other members of the group to which they belong. The grading system tries to ensure this comparability. The grades awarded to the students indicate the qualitative level of their performance.

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* *Co-ordinator, Examination Reform Unit, South Gujarat University, Surat.*

Conditions determining the success of the examination reform measures

Successful implementation of these reform measures depends on a number of factors. We may mention here the most important ones among them:

(i) Firstly, a well-stocked library is one of the prerequisites for the effectiveness of this programme. Enough number of copies of standard textbooks and latest reputed journals and periodicals in the subject should be made available to the teachers and students to enable them to keep abreast of the latest developments in the field of their specialisation. It is necessary that students develop a regular reading habits and be aware of the latest knowledge, concepts and ideas in the fields of their study.

(ii) Further, most of the standard textbooks are available in the language (English Language) that is not understood by a majority of the students. The language barrier proves to be one of the obstacles that prevent the students from acquiring the latest knowledge, ideas and concepts in their field. In order to overcome this obstacle it is necessary that at least the basic books in every subject ought to be translated into different regional languages so that it would be easier for the students to develop a well defined approach by acquiring knowledge in their subjects. In other words the University should take up a translation programme with the help of expertees in the field. And the best way to set about the task is to set up a Translation Bureau that can decide upon the books to be translated and overset the work that is being done. Care should be taken to see that books dealing with a subject from different points of view are selected for translation, so that the student may be enabled to develop his critical faculties.

(iii) In order to carry out the reform programme effectively, the teachers should not be overburdened with a large number of students. A large number of students in the class does hamper effective teaching. Close interaction between the teacher and the students is possible only when there are lesser number of students in the class. Activities like tutorials, seminars, small group discussions, personal guidance can then be undertaken successfully. Adequate student-teacher ratio is a prerequisite. It is good to note that many universities have now laid down strict admission procedures. This does help substantially in regulating student-teacher ratio, and in the long run it would be beneficial for the students.

In addition to these, physical facilities in terms of class-room, laboratories with latest available equipment etc., also are necessary for the guidance of the students and for the evaluation to become more effective.

(iv) It is desirable that teachers view these innovations with a sense of earnestness and responsibility and modify their traditional ways of teaching.

(v) Like teachers, the students should also be involved in framing questions for the Question Bank. This will compel the students to think deeply about their subjects. It will also give them a feeling of involvement. To make their participation possible in the scheme and to encourage them, it is worthwhile to work out some sort of incentives which will make them enthusiastic. Paying some remuneration or some sort of reward in the final examination like grace marks, on basis of their contribution may be considered.

(vi) Innovations add to the responsibilities and demand certain drastic changes. The University administration should respond to these demands immediately and act without delay.

Results of these experimental reform measures

Quite a few universities have initiated innovative methods of examination since 1976-77.

The most important result of these innovative practices has been that it has created a favourable climate for the same in the country in general and in various universities in particular. These reform measures find wider acceptance among teachers and students. The initial opposition to the introduction of something new in the system has waned.

Let us describe briefly the results of each one of the experimental reform programmes.

Question bank

The system of Question Bank, though not implemented by many Universities, is accepted as a useful scheme and quite a few universities are in favour of introducing the same in their universities. Wherever it is implemented, it is more a collection framing of questions for the bank by organising question bank workshops. It is necessary to seriously try out these questions in the class room before they reach the bank. The job requires a tremendous effort on the part of teachers if each and every subject of each faculty is to be covered by this scheme.

Changes in syllabi, though very necessary after a certain period of time, also pose a number of problems for its smooth working. Teachers are so much overburdened with their other professional duties, that they are not willing to take up the extra responsibilities that go with the adoption of the system.

Internal assessment

The system of internal assessment (IA) was introduced by many universities even before the reform programmes were launched. Now the internal assessment scheme adopted in various universities is much more intensive and has proved beneficial to both the teachers and the students. At the same time a proper feed back is necessary in order to make it more meaningful and fruitful. Weightage assigned to internal assessment compared to external assessment in many of the universities has not contributed much in favour of this as it does not give adequate reward in comparison with the hard labour the students put in. It should cross this experimental stage at the first opportunity.

Grading system

Grading system is not uniform in its content and procedures; i.e., there is a wide variation in the grading scales adopted by different universities. The grading system has an ultimate bearing on the learning achievements of students. Non-uniformity of grading scales and conversions adopted by various universities have put the students in pathetic condition. The system does not provide adequate means of showing the level of students' performance. Also it does not help much in comparing his performance with that of the other candidates.

Instead of solving their problems they face after earning a degree, it has created new problems for them, as no one understands this system except the academic community. Even academic institutions find it difficult to understand and operate the grading scales adopted by universities other than their own. Under the circumstances, how can one expect outsiders to accept the system without questioning?

In short, there is non-uniformity in the reform programmes adopted by various universities. Besides, these programmes are introduced at various stages and at various levels of instruction in each university. This has proved to be a simple experiment and nothing more. This demands rethinking on our part and now the question is : how long can we carry on this experiment?

Major suggestions

On the basis of the experiences gained in experimenting with the various reform measures, we should, now sincerely move towards adopting a reasonable and sound system of examination. In other words, it is now time to say good-bye to the traditional system of examination. The following steps will prove helpful in this direction:

(i) Universalization of reform measures is the first step in the system to be followed. Introduction of uniform reform measures covering primary and secondary stages and also colleges and universities in the state will not only help a lot in this direction but avoid many inconsistencies and difficulties associated with these innovations.

(ii) Every effort must be made to inform the employers about the changes that take place in the system of examination. So far no substantial efforts have been made in this direction and there is an urgent need to do much more in this regard. These employers/agencies are quite confused and face a number of problems while selecting candidates for the jobs available in their establishments. They should not only be informed of these measures but they should also be convinced that the reforms carried out enable students to become more capable in dealing with not only their subjects but also in exercising their critical faculties.

(iii) Continuous evaluation of the programme is a must in order to make it more meaningful and fruitful. This will help modify the system in a better direction.

(iv) Further, hundred per cent internal evaluation or assessment should be the ultimate goal of examination. After every two or three years, weightages for internal evaluation should be gradually increased, till it reaches 100% finally, so that the importance of the external examinations loses its validity. Internal assessment should be the only rod for measuring the performance of students in the academic field. Quite a few institutions, like the IITS' and the Agricultural Universities have now adopted 100% evaluation and their students fare better in their studies and have proved to be more competent in comparison with the students of other universities or institutions of learning.

(v) Short-term courses/Summer Institute courses on technology of teaching and evaluation may be organised in different universities. Central institutions like NCERT, Association of Indian Universities should help the universities in organising such programmes.

(vi) It is also desirable to set up a cell in the Ministry of Higher Education for co-ordinating these functions. This cell should disseminate information on the various aspect of reforms in the field of educational activities among all the universities.

In addition to these, teachers' willingness to accept the challenges in the field and bid good-bye to the traditional ways and methods of teaching, carrying out researches in the field of examination and organising frequent orientation programmes in the beginning of each academic year, etc., will contribute a lot to the development of healthy and positive outlook towards the system of examination and examination reform programmes. □

Science and Technology in the Eighties

(*Continued from page 216*)

planning and implementation machinery in the Government is very weak. The N.C.S.T. has no longer any role with regard to S & T planning, and for the last few years, it has been like a character in search of a role. There is no effective capability for S & T planning in the Planning Commission. There is also an inadequate appreciation of what S & T can do and how, in many economic ministries.

The revival of the Cabinet Committee on Science and Technology is a step in the right direction. One understands that the Government has decided to revive the Scientific Advisory Committee to the Cabinet. This by itself is unlikely to meet the needs, unless it is accompanied by steps to build up a highly competent S & T group within the Planning Commission and to equip the economic ministries with small S & T information, planning and analysis groups, staffed with professional scientists and technologists, and headed by senior scientists and technologists who would function as Scientific Advisers to the Ministers.

Are our decision makers ready for these steps which have been repeatedly recommended by several bodies ?

[*Courtesy* : *P.T.I.*]

Reddy calls for enriching heritage

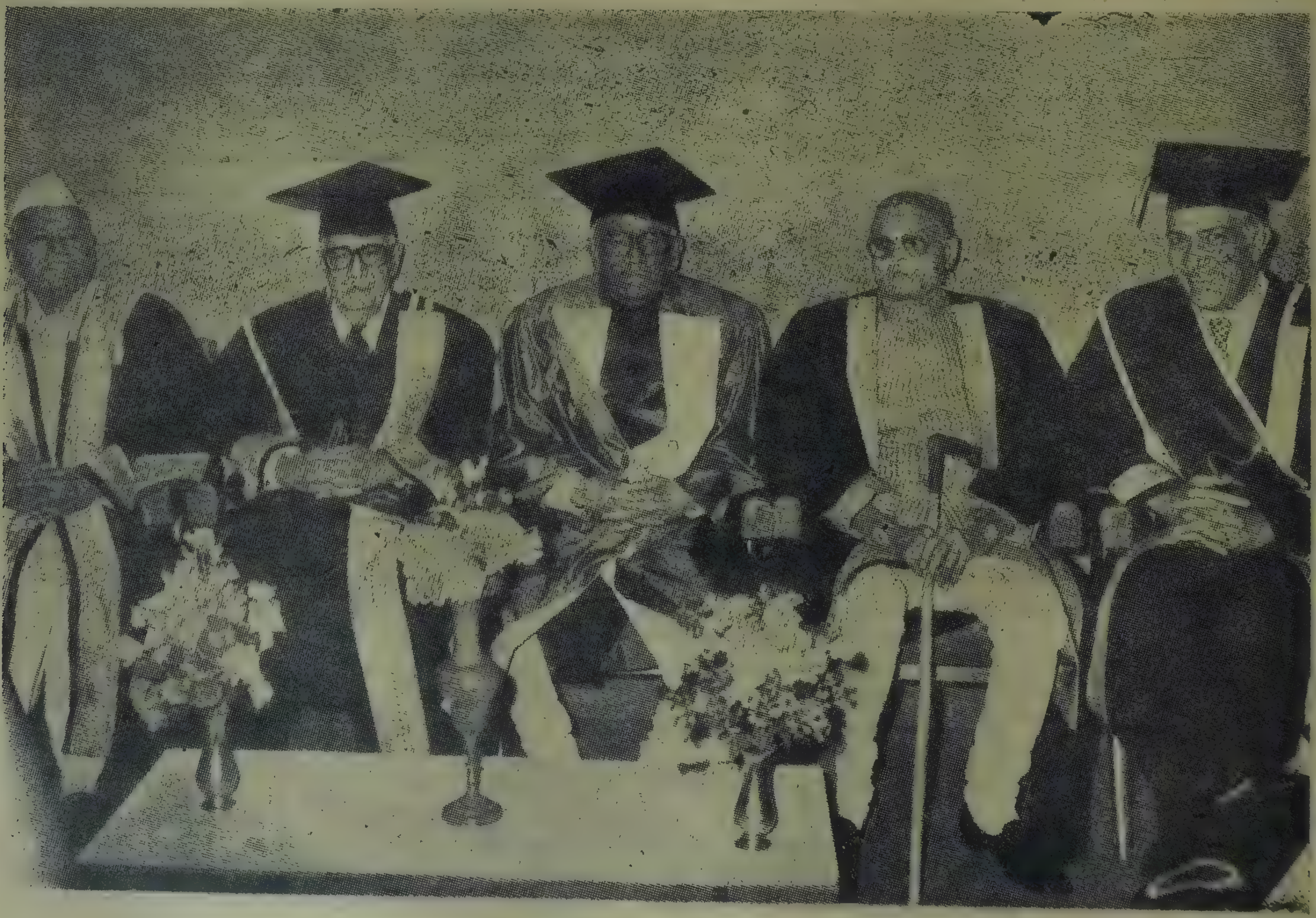
The success of a University is measured not merely in terms of the number of students enrolled, or teachers employed, but in its ceaseless endeavour to attain peaks of excellence and the quality of intellectual leadership that it offers to the young generation.

We are living in a dynamic age, characterised by speedy and continuous changes, posing ever fresh questions regarding the ideals of University education. A University, true to its very definition, has always stood for universal outlook based on humanism, reason and tolerance. The success of a University consists in its capacity to produce independent thinkers endowed with strength of character. It is only such great thinkers that have made significant contribution to the enrichment of human thought and progress of mankind. All through the history of mankind, we find that societies are always in a process of continuous renewal in which all ideas, institutions and structures undergo transformation, leaving old garbs and taking up new forms and postures.

This process of constant struggle for renewal has been the chief characteristic of the evolution of modern societies. What is essential is that we should contribute our mite to this process of renewal, endowed with the strength of character and courage of conviction ? The academic community and institutions of higher learning have a big role to play in providing intellectual leadership to Society in this unique struggle in the realm of thought.

Our universities should have the moral courage and intellectual honesty to assume this leadership. In the present day world, Universities cannot remain isolated for ever from contemporary Society and its problems. They must try to reach out to society and help in finding solutions to the ever increasing problems of contemporary life. This active participation of universities in the life of the community will go a long way in enriching the quality of life of the community.

We are passing through a time of severe stresses and strains. Some of the social tensions around us today are thrown up by the very process of our own social development. We are decisively moving away from the rigid traditions of a distant past and are on the threshold of an irreversible trend towards new horizons on the road of modernisation. Our industry, agriculture, education, health, all are fast



President Neelam Sanjiva Reddy (third from left) at the convocation of Panjab University.

developing. Science and technology are slowly but surely, becoming a way of our life. And yet emotionally we are not able to make any decisive break with the past. Our emotional attachments are still conditioned by old traditions. Presumably, it is this conflict in the process of development that is reflected in the current situation with occasional outbursts of fury on matters like regionalism, linguism, religion, community, caste and so on.

It is true that languages, religion, ways of life are all parts of our cultural heritage. What is needed is to find solutions to new problems while trying to preserve all that is worthy in our heritage. This process of growth demands that our cultural heritage should also lend itself to continuous renewal, and it is in this renewal, that we should look forward to the necessary leadership in our intellectual community. It is this ability to provide intellectual leadership that is expected of our universities.

India has made rapid and significant progress in the field of University education since independence. It is a matter of pride for all of us to know that today our scientists, doctors, engineers and technologists are serving in many parts of the world. This is a welcome development. But it is very distressing at the same time to see a large number of educated youth unemployed. One wonders sometimes, whether the growth in education, specially higher level education in our country, is in the right direction and is in step with the absorbing capacity of our economy.

The primary objective of 'learning for earning' cannot be ignored in a country like ours. A job-oriented education from elementary to the University level, has also to be planned, well in accordance with the employment outlets likely to be generated by our economic development. The most appropriate education is that which enables the recipient to develop character, strengthen mental faculties, expand intellectual horizons and enables one to stand on his own feet. **[Excerpts for the convocation address delivered by Shri N. Sanjiva Reddy, President of India, at the Panjab University, Chandigarh].**

Indian school of Mines

DHANBAD-826 004

Advt. No. 420002/81 **2nd April, 1981**

The Indian School of Mines, a 'deemed University' under UGC Act invites applications for recuritment of an **ASSISTANT REGISTRAR**—in the pay scale of Rs. 700-40-1100-50-1300 plus allowances as admissible to Central Government employees. Total emoluments at the minimum of the scale work out currently to Rs. 1154.50.

Qualifications

(i) A Master's Degree with at least 60% marks in the aggregate. (Essential)
(ii) Administrative experience of academic work including examinations. (Essential)
(iii) Ability to draft and edit reports, agenda and minutes in English. (Essential)
(iv) Acquaintance with the experience of Semester System. (Desirable)

Age—Not more than 40 years.

General— Applicants should be prepared to appear for an interview at Dhanbad at short notice. The successful candidate is expected to join immediately.

First class railway fare by shortest route is reimbursable to candidates coming for the interview. A 'No Objection Certificate' should be produced from their employers at the time of the interview.

How to apply—Six copies of complete bio-data on plain paper (i.e. 1.1 Name in full and address (in capital letters), 1.2 Date of birth. 2.1 Nationality, 2.2 State if Scheduled Caste/Tribe (certificate from appropriate authorities to be attached), 3.1 Particulars (including percentage of marks obtained, and year of passing) of academic and technical qualifications, 3.2 Details of experience/position held, nature of duties, scale of pay (and last pay drawn) etc., 4.1 Minimum salary acceptable, 4.2 Minimum notice required, 5.1 Additional information (if any) should reach the Registrar, Indian School of Mines, Dhanbad—826 004 by **April 20, 1981** They shall be accompanied by a money order receipt of Rs. 8/- (Rs. 2/- for Scheduled Caste/Scheduled Tribe candidates) in token of remittance of application fee.

The School reserves the right to consider cases of 'Contact Candidates' whose names have been suggested by experts even though they have not formally applied for the post.

Relaxation in age and qualifications may be given in the case of candidates otherwise considered specially suitable.

CANVASSING IN ANY FORM WILL BE CONSIDERED A DISQUALIFICATION

S.P. Varma
REGISTRAR

CAMPUS NEWS

IIT Delhi hosts Indo-US workshop

The Indian Institute of Technology, Delhi in collaboration with the Department of Science and Technology, Government of India, and National Science Foundation, USA organised an Indo-US Workshop on "Flood Mitigation and Water Resources Development". About 100 delegates from USA and Indian scientists from all over the country participated in the deliberations of the Workshop.

The scientists of the two countries discussed the present state of art and exchanged the views and information on the important aspects of water resources such as land water availability, land-water dynamics, hydrological inputs, groundwater development, space hydrology, floods and droughts, developmental policy, programme and comprehensive systems planning as applicable in the context of flood mitigation and water resources development to meet the fast increasing water demands. The consensus of the opinion of all those participated was that flood problem cannot be dealt separately in an effective manner and for each river basin a comprehensive plan which is inter-disciplinary in nature should be developed. The workshop identified the fields of corroborative further research as non-conventional flood control measures with the use of systems techniques, watershed management and its economics, hydrology of floods, use of space technology for flood and groundwater mapping etc. and considered as under.

The Workshop considered that the potential for Flood Mitigation through Groundwater Research was a research area with very high priority. In particular, many of the Indian participants suggested Gomti River in Central U.P. will be an ideal geographical region in which to test this conceptual research approach. The Gomti Basin is a relatively small tributary of the Ganges which is entirely contained within the state. Substantial amount of surface water and ground water developments have already been undertaken in the basin and there is a large existing data base and large amount of on-going data collection. Most of the participants agreed that this would be a most readily available Indian Basin for the research. In addition to the Gomti several other Indian rivers were suggested. The Sahbi in Haryana and the Kosi river in North Bihar were also suggested. The American participants suggested that some work in southern California following up the extensive Induced Groundwater Recharge in Saangbriel and the Centrrenna river be chosen for testing research in the United States.

The approach suggested by the Workshop was to attempt to predict the impact of the floods under the current conditions. In order to do this, it will be necessary to assemble and analyse of the pertinent data and then to use these data to create a model of the system. It will be necessary, however, to perform additional data collection (for example, drilling tests wells, if necessary) in order to evaluate the performance of the model and system.

Once satisfactory calibration has been attained, it is proposed to introduce a variety of technological options for removing the ground water. Several different pumping patterns will have to be explored.

On successful completion of the ground water storage model studies and economic (and social) evaluation of the various possible projects configuration needs to be performed.

The Workshop suggested that evaluation of investments in Watershed Management should be carefully researched. The physical, economic and social impacts of watershed management, both in upstream areas and in the downstream areas needs to be considered. It was suggested that the existing data base is of watershed management be the starting point of this research. For example, the extensive field research of the various management research unit at Dehradun could be the base for the economic evaluation of the various approaches to watershed management in the Himalayan regions. The research needs to be carried out on both the agricultural and the non-agricultural uses of the watersheds. It was the understanding of the workshop that substantial research had already been undertaken in the area of watershed management in the United States, but this research was deficient in the area of the economic evaluation on the downstream reaches of the river basins. It was, therefore, proposed that some U.S. watershed research stations be investigated for suitable data for use in the evaluation of the downstream impacts.

The Workshop also expressed the concern that there was insufficient standing of the climatic dynamics of floods and droughts. It was suggested to the Workshop that a Atmospheric General Circulation Model—Ground Hydrology Model (AGC-GHM) in actively used be developed and tested on a particular area. For example the Gomti river basin mentioned above will be a potential application area for this.

It was considered that the research work shall be greatly facilitated if arrangement for easy access and exchange of existing information on the subject of flood mitigation in particular and water resources development in general is organised. Agencies could be identified in the two countries who could coordinate and initiate action in this area. For example, the US Corps of Engineers representatives offered to coordinate from the American side and suitable agency could be identified from the Indian side.

Conference of English language teaching institutes at Hyderabad

The fifteenth annual conference of English Language Teaching Institutes Education Secretaries and Directors of Education was held at the Central Institute of English and Foreign Languages, Hyderabad. The Conference was attended by representatives of the Union Ministry of Education, UGC, NCERT, State Institutes of Education/SCERTs, Regional Colleges of Education, Central Board of Secondary Education, Central Schools Organisation, AIR and the British Council. Speaking at the inaugural session, Prof. Ramesh Mohan, Director, CIEFL, said a reorientation in the programmes of teaching and learning of English was essential to make it meaningful and effective. We should no longer allow the present situation to continue in which only a few privileged children receive the benefits of good teaching of English. Urgent steps have, therefore, to be taken to ensure that adequate provision is made for non-formal teaching of English in addition to improving the quality of instruction in schools.

Prof. Mohan said if the standard of English teaching and learning have to be improved and if the present situation where standards are rapidly falling has to be checked before it goes beyond control, the states will have to clearly define their policy in this respect and provide the necessary facilities and financial resources for the effective implementation of ELT programmes with commitment. Within the limitations of its resources, CIEFL will continue to provide assistance, specially in the form of resources, instructional materials and academic guidance.

The Conference discussed, among other things, the State Level Plans for the Improvement of the English Language Teaching, Correspondence Course for High School Teachers, Utilisation of English by Radio Programmes, Training of Resource Persons, and Monitoring Programmes for the Improvement of ELT at the Secondary Level in the States and Union Territories. The Conference decided to launch a programme of in-service training to high school teachers in English through Correspondence-cum-Contact during the next academic year. The one year course, aimed at improving the professional competence and knowledge of English of the teachers, has already been designed by the Central Institute of English and Foreign Languages, Hyderabad.

The Conference recommended that the State Governments should set up District/Zone level centres for organising the Correspondence-cum-Contact programme. These Centres should also run non-formal courses in English for adults, School dropouts and the rural and weaker sections of the population. It decided that CIEFL should take up the task of monitoring English Language Teaching programmes in various States/Union Territories and providing consultancy services in revising syllabuses, producing teaching materials and reviewing examination procedures. The ELTIs and District Centres, it was decided, should also train teachers in the utilisation of the English by radio programmes prepared by CIEFL and being broadcast by All India Radio.

State politics discussed at Kurukshetra seminar

Dr L.P. Sinha, Vice-Chancellor, Himachal Pradesh University, Simla, lamented the failure of the intellectuals to give a lead to the nation at large and called upon the political scientists to assume the intellectual leadership. He was inaugurating an All-India Seminar on "State Politics in India" sponsored by the U.G.C. and organised by the Department of Political Science, Kurukshetra University. Dr Sinha highlighted the gaps in the study of political phenomena in this country and he suggested that a historical-sociological analysis of the factors that make for tensions and conflicts in States, like Assam, the challenging issue of job-reservation and the problem of their assimilation in a broad framework of national policy and a fresh look at the Centre-State relationship in all their aspects, keeping in view the lessons and experiences of the last thirty-one years, in the context of the broad federal polity be made. He also suggested a study of the tardy manner in which land reform measures have been taken in various states. The caste-politics and the extent to which it poses dangers to the very fibre of our political system and the party-politics at the state-level in aspects of both its differentiations and linkages with the central level politics and leadership according to him, needed serious study.

In his key-note address, Dr Shanti Swarup, Lajpat Rai, Professor of Political Science, Panjab University, Chandigarh, pointed out that the study of State Politics should be done from the comparative political angle. He suggested that the politics of the states experiencing scarcity and politics of the affluent states should be compared which is likely to show good results and help develop a sound political theory. He also suggested that a comparative study of the working of various institutions in different states should be made. Prof. Shanti Swarup called upon political scientists to analyse the linkages between the student victism and the state politics in different States and he particularly pin-pointed the need of such a study keeping in mind the recent developments in the states of Assam and Gujarat.

Dr V.S. Budhraj, Professor and Head, Department of Political Science, Kurukshetra University, highlighted the objectives of the Seminar being attended by a large number of political scientists from all over the country.

English teaching workshop organized at Bhuj

The British High Commissioner in India, Sir John Thomson, addressed the participants of the seminar cum-workshop in English held at the J.B. Thacker Commerce College, Bhuj. The seminar was attended by the teachers of English from Gujarat University colleges and various educational institutions in Kutch.

In his address, Sir Thomson highlighted the role of English as a unifying and integrating factor in India. One of the reasons, he added, why Indians were represented on various international bodies was the command that they have over English. He commended the literature produced by distinguished writer, Shri R.K. Narayan and the efforts made by Peoples' Education Society, Bhuj in raising the standard of English in Kh.utc

While welcoming the chief guest, the Principal of the college, Mr R.V. Dholakia, stressed the importance of English language and communication in the fast growing complex world of business. Rapid industrialisation and export promotion require competence in English language and the proficiency can only be enhanced if correct use of English is known. It is in this connection that the seminar on English language teaching for college teachers assumed a special importance. Students can be made conversant with latest currents in learning techniques only through contact with well informed teachers.

Prof V.J. Jadeja, Head of the English Department, complimented the British Council for having given to the college 37 valuable books on English language and also for other facilities being made available by the Council from time to time.

Mr Subhash Jain was the Director of the Seminar. He said that the main task today was to identify the problems and to arrive at plausible practical strategies, techniques and materials to improve English instruction in our institutions.

Sir John Thomson addressing the teachers of English at the J.B. Thacker Commerce College, Bhuj.

Development of villages through non-formal education

The University of Jammu has adopted a strategy for overall development of villages. The work will be undertaken by the Centre of Non-formal Education comprising the Continuing Education Centre and the Adult Education Centre. For this purpose, on experimental basis, the University has chosen Akilpur Panchayat of Marh Block, Jammu. The Centre has decided to undertake a study project of this area. Besides, opening 5 women centres in the five villages of the block to train the village women in the knitting, stitching, embroidery, applied nutrition etc., it has been proposed to open, five Centres of Adult Education, one centre where type writing/stenography will be imparted and other welfare programmes included complete immunization of the children of this block in collaboration with the Directorate of Health and Family Welfare. Part of the expenditure on the above developmental programmes will be spent by this University out of the grants sanctioned by the UGC. Cooperation of the State Govt. as well as other private agencies will also be sought. It has been decided that members of the Panchayat, young men and women particularly students of these villages studying in the colleges and the University will be associated for successful implementation of the above programmes.

The extension project was inaugurated by Prof Satya Bhushan, Vice-Chancellor of the University. About 600 villagers attended the function. The Vice-Chancellor appreciated enthusiasm shown by the students and the Youth in the programmes formulated.

Varsity enrolment declines

There has been a decline in the growth rate of student enrolment at the university level—from 9.5 per cent in 1970-71 to 1.2 per cent in 1979-80. However, the average growth rate during 1970-80 was four per cent annually. In the previous decade (1960-70), the average growth rate per annum was 14 per cent. The total number of students in 1979-80 enrolled in 108 universities, 11 institutions deemed to be universities and 4,558 degree colleges, was 26,50,000.

An analysis of enrolment in various faculties shows that enrolment in the Arts in proportion to the total number of new students went down from 44.5 per cent in 1975-76 to 40.6 per cent in 1979-80. For Commerce, however, it rose from 17.1 per cent in 1975-76 to 19.5 per cent in 1979-80. The enrolment in Science has been steadily increasing since 1978, after a downward trend. From 18.2 per cent in 1976-77, it went up to 19.2 per cent in 1979-80. Changes in percentages of enrolment in the professional courses have been only of a marginal nature.

Tamil and medical varsities proposed

The Tamil Nadu Government is considering a proposal to have a separate university for medical education. The details of the proposal would be worked out soon after the appointment of a Special Officer for the purpose. This announcement was made by Dr H.V. Hande, Health Minister, in the Tamilnadu Assembly.

The State Government has also decided to establish a Tamil University at Thanjavur. The Finance Minister made this announcement during the budget session of the Tamil Nadu Assembly. It is proposed to inaugurate the university on 15th September, 1981, the birth anniversary of the former Chief Minister, Shri C.N. Annadurai. The government was already in correspondence with the University Grants Commission for the establishment of the University at Karaikudi.

Kurukshetra conducts seminar on child and the Law

The Law Faculty of Kurukshetra University has convened a three-day U.G.C.-sponsored All-India Seminar on 'Child and the Law'. Mr P.M. Bakshi, former Member Secretary, Law Commission of India, inaugurated the seminar and in his speech he stressed upon to "make a solid contribution towards redefining the values and identifying the areas for law reform" for child welfare in India. He further added that this would enable us to evolve a code of rules that will foster each child's development of its personality. Dr Surya P. Sharma, Dean, Faculty of Law and Director of the Seminar, welcomed the delegates and stated that the seminar was designed to highlight the basic existing Indian laws and judicial decisions relating to children with a view to identify the areas where reform is needed. A large number of delegates from all over the country participated in the seminar.

Plea for full-time UGC members

The Karnataka State Universities and Colleges Employees' Federation has endorsed the recommendations of the Association of Indian Universities that membership of the University Grants Commission be made full-time and a certain proportion of the commission's membership be drawn from among the list of Vice-Chancellors.

News from Agril. Varsities

Carstens lauds research at HAU

Addressing the senior members of the faculty at Haryana Agricultural University Mr Karl Carstens, President of Republic of Germany said that the progress that India has made in the field of agriculture is a tribute to the hardworking farmers of India and the role played by scientists in agricultural universities". Mr Karl Carstens complimented Dr P.S. Lamba, Vice-Chancellor, for the role this University has played in the success that the State and the country has made in bringing about the green revolution. Mr Carstens said, "though various inputs like pesticides, herbicides, fertilizers etc. are very important for agricultural progress but the most important of all these he thought was training the farmers in the use of new technology". He said "it is this particular area for which I would like to particularly compliment the scientists and you Mr Vice-Chancellor." Mr Carstens said that he had always been impressed by the Indian art, religion, literature and culture but nothing had impressed him more than the rapid progress in agriculture that the Indian farmers who work strenuously even under inclement weather, had made. President Carstens also announced a gift to the Haryana Agricultural University of a research scholarship for one scientist as well as a microscope or other piece of equipment to be used for research worth 30,000 Deutche Mark. This is equivalent of Rs. 1.25 lakhs.

Welcoming the President, Dr P.S. Lamba, Vice-Chancellor said it is not only the art and culture which brings India and Germany closer to each other but also the practical collaboration in the economic, technical and scientific fields. He disclosed that at H.A.U. itself there are 12 scientists who have been to Germany on fellowships or training Programmes Dr Lamba said Indo-German cooperation in the realm of international economic cooperation and understanding is characterised by mutual trust and optimism. He hoped that this visit would further accelerate and strengthen the process of cooperation. As a gesture of goodwill and respect to the visiting dignitary, Dr P.S. Lamba, Vice-Chancellor presented to him a doll in Haryanavi costume prepared by the College of Home Science. He also presented to the President a set of publications of the University.

The President was taken on

a round to the veterinary clinics where he saw veterinary surgeons performing operations for diapragmatic hernia, stringhalt and rumenotomy. Two sick animals which had been brought by the farmers to the clinics particularly attracted the President who put many questions about their disease. He also saw a buffalo which had been brought for haemoglobinuria. At the College of Animal Sciences the President saw the crossbred cows that have been evolved at the HAU animal farm. In the College of Agriculture, Dr P. S. Lamba showed to the visitor the various improved varieties that have been evolved by the HAU scientists. The President was particularly impressed by the dryland farming techniques evolved by the scientists.

Emphasis laid on self-employment

While addressing the annual convocation and prize distribution function of the College of Home Science of the Punjab Agricultural University Dr M.S. Swaminathan, Member Planning Commission, said in Ludhiana that there were 50 million unemployed in the country and jobs for all of them could not be created. He suggested that the unemployed persons should not run after petty salaried jobs but instead they should adopt self-employment. They could take up poultry, dairy, fishery by taking loans from the Commerical Banks and from other financing agencies. Dr Swaminathan suggested that employment generating and manpower centres should be established to properly utilize the human resources. Dr Swaminathan said that the Home Science graduates should help on improving the quality of life in the rural areas. Dr Swaminathan commended the role of PAU, which had created awareness among the farmers of Punjab which resulted in greenr evolution. Dr swaminathan further said that Punjab being a very small State contributed more than fifty per cent of foodgrains to the National Food Reserves. Dr Swaminathan said that it would be short sighted approach if funds for research in Agricultural Universities were curtailed as research was a continuous process.

Dr Amrik Singh Cheema, the then Vice-Chancellor of the University in his presidential remarks, said that the situation in the country had become alarming on account of rising population. It was therefore necessary that the human resources were utilized fully for the development of the country. Dr Cheema called upon the young home science graduates to spread the home science education in the rural areas. He urged that home science should be introduced in every girls school and college to provide more job opportunities for home science graduates.

Symposium on recent trends on farming system in India

Dr Mukhtiar Singh, Emeritus Professor, Punjab Agricultural University, while inaugurating the symposium said: "Though salient research findings of dryland research have revealed that with the adoption of simple package of non-monetary inputs we can increase the 100% production of various dry-land crops as comparable to the traditional practices of farming, but because of lack of farmers interest we have not been able to achieve the desired result. So the efforts should be made to define the new technology in easy terms so that layman can understand and apply it practically. On the other hand farming system should be organised in such a way that there is maximum utilization of all the available resources."

He said farm scientists should transfer the new technology to the rural masses. He also advised them to include poultry, piggery, fishery, bee-keeping and small scale cottages in the farming system so that it can be more paying.

Dr P.S. Lamba, Vice-Chancellor, H.A.U., in his presidential address said that the size of holdings in India are too small and are being reduced further due to increased pressure of population on the land. Under these circumstances, Dr Lamba said, integrated production of crops and animals becomes all the more important to increase the income of the farm family and at the same time to provide gainful employment throughout the year. Dr Lamba suggested to scientists to conduct in-depth studies about the requirements of inputs, cost of production and economic returns from the combination of crops and livestock.

About 22 delegates from all over the country participated in this symposium.

PAU budget finally cleared

The Board of Management of Punjab Agricultural University at its meeting held in Ludhiana approved the budget estimates amounting to Rs 1153.70 lakhs for the year 1981-82. This includes Rs 563.32 lakhs for the non-plan agriculture schemes and Rs 190 lakhs for plan agriculture schemes during the year 1981-82. Similarly, the expenditure on the non-plan veterinary schemes would be Rs 46.77 lakhs and plan veterinary schemes Rs 57 lakhs respectively. The major share of the assistance is met by the State Government and the Indian Council of Agricultural Research would contribute Rs. 203 lakhs.

RRL releases JAMROSA

Regional Research Laboratory, Jammu, is engaged in the improvement of Cymbopogon for the last many years. As a result of these efforts a number of varieties have been released of which RRL-14 and RRL-16 have already become commercially very popular.

This year another variety named Jamrosa has been released. The essential oil distilled from its herb and flowering tops contains 80-85% geraniol. The geraniol content of oil is comparable to the oil of Palmarosa, while the oil yield per hectare is 200 kg which is almost double that obtained from Palmarosa.

HAU develops new cotton strains

Haryana Agricultural University has developed two new strains of American Cotton (Narma). These two varieties are H-842 and H-854. Dr P.S. Lamba, Vice-Chancellor of the University, said that one of these strains viz. H-842 matures a fortnight earlier than the earlier released variety H-777. Therefore, it is fit for double cropping and farmers can sow even gram after it. Dr M. S. Kairon, Chief Scientist (Cotton) disclosed that the variety H-842 is comparatively less affected by the pink boll worm because of its higher period of maturity. The short duration also reduces the pink boll worm larvae carry over. Dr Kairon said that this variety was evaluated for three years in 15 trials which included trials on the cultivators field too.

This new strain, H-842 has produced an average 15.0 to 29.12 quintals per hectare of seed cotton (kapas). This is in contrast to the 12.5 to 26.33 quintals yield per hectare obtained from the earlier released variety H-777 which was released last year. Dilating on the qualities of this variety, Dr Kairon said that in addition to its high yield another important feature of the strain is that it possesses 38.0 to 40.0 per cent lint which is 5 to 6 per cent higher than the local variety H-777. Because of this significant tribute i.e. high lint percentage, the farmers can get higher price for their produce in the market.

The other variety H-854 is as early in maturity as H-777. It is fairly resistant to jassids and pink boll worms. Because of its synchronous flowering habit the variety escapes from the pink boll worm attack and boll worm damage. This variety also possesses superior fibre properties and is better than H-777. This variety has been evaluated in 14 field trials and yielded on an average 25 quintals of seed cotton per hectare against the 22 quintals per hectare of seed cotton obtained from the earlier variety H-777.

Panel to promote environmental science

The University Grants Commission has set up an expert committee to promote studies and research in environmental sciences. This is a follow-up to a national seminar organized last year, which made specific recommendations for the development of environmental education at the university level. Some universities in the country are at present offering Master's degree programmes in environmental sciences with emphasis on biological aspects or physical sciences. They include Jawaharlal Nehru University, A.P. Singh University, Saurashtra University, Madurai Kamaraj University and the North-Eastern Hill University. A few others have included some of the courses of studies in the normal Master's degree programme. During the Fifth Plan period, a number of projects have been funded by the UGC in the areas of environmental sciences. One of the major projects in progress relates to the process of desertification in Saurashtra undertaken by the Department of Biological Sciences, Saurashtra University, Rajkot.

Science & Technology

Environment planning body constituted

The Government of India has moved a step further towards protecting the environment by constituting a National Committee on Environmental Planning with Mr B.B. Vohra, former Secretary, Petroleum & Chemicals as its Chairman. Earlier the Government had constituted a Department of Environment under Prof. M.G.K. Menon, Secretary, Department of Science and Technology.

The 30-member NCEP consists of Dr (Mrs) Madhuri Shah, Chairman, University Grants Commission, Prof. M. G. K. Menon, Mr M.K. Mukherjee, Secretary, Ministry of Works and Housing, Mr S.M. Ghose, Secretary, Department of Industrial Development, Dr O.P. Gautam, Director-General (ICAR), Dr V. Ramalingaswamy, Director-General of Indian Council of Medical Research, and Dr P.K. Das, Director General of Observatories. The committee also has the Inspector-General of Forests, the Director of the National Institute of Oceanography and the Director of the National Environmental Engineering Research Institute among other officials. The noted naturalist, Mr Zafar Fatehally, agricultural scientist, Dr B.P. Pal are among the non-official members.

The committee will prepare an annual report on the state of environment besides identifying and investigating problems of human environment. Its functions include advising the Government on policies concerning environment and promoting research.

National workshop on atomic and nuclear physics at Roorkee

The third national workshop on Atomic and Molecular Physics was held at the Department of Physics of the University of Roorkee recently. The workshop was sponsored by Bhabha Atomic Research Centre, Department of Science and Technology, Indian Association for the Cultivation of Science, Indian Institute of Astrophysics, Indian Space Research Organization, Institute of Physics, National Physical Laboratory, Physical Research Laboratory, Tata Institute of Fundamental Research and the University of Roorkee.

Dr Jagdish Narain, Vice-Chancellor, in his inaugural address highlighted the importance of the study of atomic collisions in understanding various phenomenon connected with aeronomy, astrophysics, surface studies, plasma physics and controlled fusion studies. The last one, he pointed out, may ultimately lead to an almost everlasting source of energy. Similarly ion-molecule interaction studies help in efforts for combating air and water supply pollution. Wishing the delegates a success in scientific deliberations he pointed out that the University of Roorkee with its calm and tranquil atmosphere should provide a very fitting ground for meaningful scientific discussion and outcome.

Dr M.K. Srivastava, Convener, in his vote of thanks made a special acknowledgement of the sustained interest shown by Dr Jagdish Narain, Vice-Chancellor in the planning of this Workshop and the vital support extended by Prof. D. Lal, Director, Physical Research Laboratory leading to the involvement of the various national organisations.

About eighty delegates from various universities and research institutions participated in the workshop. The programme included review talks and progress reports covering a wide area in atomic and molecular physics. Seventy seven contributed papers were presented and poster-displayed.

One of the highlights of the Workshop was an evening lecture on "Forbidden Spectral Lines in Astronomy" by Padamabhushan, Dr M.K.V. Bappu, Director, Indian Institute of Astrophysics and President, International Astronomical Union. He traced the history of astronomical studies since the time of Fraunhoffer, punctuating it with several exciting antcedotes.

A panel discussion was organised to look at the feasibility of initiating low budget experimental work having a reasonable potential for interesting physics outcome in this area in our universities.

SPORTS & NSS

Progress of sportsmen to be monitored

Twentyone coaching camps have so far been held in 12 disciplines in preparation for the 1982 Asian Games. The disciplines are Archery, Athletics, Badminton, Boxing, Basketball, Cycling, Equestrian, Football, Gymastics, Swimming, Table Tennis and Weightlifting. The Minister of State for Education, Mrs Sheila Kaul, informed the Lok Sabha that the Government has liberalised the pattern of financial assistance to national sports federations allowing, at Government cost, holding of three coaching campus each year during 1980-81, 1981-82 and 1982-83 in each discipline included in the Asian Games.

Mrs Kaul said the first two coaching camps are of six weeks duration each and the third of four weeks. In addition upto three camps are allowed to each concerned federation for preparing their respective teams for participation in any international competition during these years. Additional facilities by way of construction of indoor halls at NIS, procurement of equipment of international standard and obtaining of services of foreign coaches in selected disciplines are some of the steps taken in this direction.

The NIS has set up a Committee with its Director as the Chairman and six senior coaches to supervise coaching camp activities. Government has also decided to set up a Committee to monitor the progress of preparation of Indian teams and competitors for the Asian Games.

Another hostel for NIS

The Government has earmarked about Rs 60 lakh to construct various buildings at the National Institute of Sports in Patiala in view of the 1982 Asian Games. Mr R.L. Anand, Director of the NIS, Patiala said that out of this sum, Rs. 30 lakhs will be spent on the construction of a new 240-bed hostel. Construction work on the project has already started. The first wing of the hostel with 88 beds will be completed by May this year. The whole of the complex is stated to be completed by October this year.

The work was to be executed by the CPWD. But the Punjab Works Department has agreed to take up the project on a priority basis. The new hostel and the existing Major Dhyan Chand International Hostel will be kept for the men athletes. The women campers will be accommodated in the building at the front of the palace.

Mr Anand said a new canteen would be constructed at a cost of Rs. 2 lakhs. Twelve staff quarters would also be constructed at a cost of Rs. 8 lakh. Besides this, five improvised indoor halls would be raised to provide the athletes with larger indoor facilities. The readymade halls would be brought from Bombay and installed at the institute shortly. At present there are only two indoor halls.

NSS programme officers meet in Simla

Dr B. Chakravarti, Deputy Programme Adviser, NSS of Government of India urged the NSS Programme Officers in Simla to make this programme regular with a view to bringing in a change in the attitudes of the students from individual excellence to social commitment and social service by setting up personal examples. He was addressing the Programme Officers of Himachal Pradesh in the 10th Annual General Meeting of the University Advisory Committee. He pointed out that the programmes of curriculum of the NSS were developed by the NSS volunteers and the programme officers on the basis of the felt need of the villagers in consultation with them. The felt need vary from village to village, therefore, only guidelines had been given by the Ministry of Education and the method of work and accounting had been kept flexible to accommodate the varying need.

Shri Charanjit Singh, NSS Co-ordinator of the University pointed out that an Inter-College combined NSS Camp would be held at Rampur during this summer under guidance of Prof. Mathur. Atleast two students would participate in this special camp. Shri Charanjit Singh said that an Inter-College combined NSS special camp organised by the University at Misharwalla village from 11 February to 20 February, 1981 proved to be a grand success. 55 NSS volunteers from 15 different colleges alongwith four non-student youth and one teacher organizer participated in this camp.

News from UGC

University-industry liaison planned

Dr. (Mrs) Madhuri R. Shah, Chairman, University Grants Commission, said in New Delhi that for the first time the Commission is proposing to associate business and industrial houses with higher education so that products of universities are absorbed fruitfully by them. Explaining the scheme, Dr (Mrs) Madhuri Shah, its Chairman, said that if, for instance, a university wished to conduct an automobile engineering course UGC besides extending support, would associate the automobile industries with it by finding out its requirements and the chances of absorbing the students. Mrs Shah feels that "Universities can no longer remain isolated from society. If we admit that education is a primary need of each individual the educational system, and more so universities will have to broaden their educational functions to the dimensions of society as a whole."

Mrs Shah said there would be a monitoring cell at the UGC and university level which would examine every project and keep a tag on its progress. At the present moment funds are given to universities and forgotten thereafter. She believes that educational opportunities should no longer be limited to the urban elite but planned for larger groups of various social strata and for different regions.

In order to reduce inequalities, the universities would have to reorganize their structure, content and strategies. They had to reach out to the community, new models and varying alternatives had to be evolved with a stress on flexibility, diversification, newer techniques and widening of horizons. In the old days, she recalled, every university had a "good" or "bad" reputation, there was always a preconceived opinion of a student coming from a particular university. This sort of a thing had to stop.

New UGC norms for viability of colleges

The University Grants Commission has revised the criteria for determining the viability of a College. The norms so far were based entirely on student enrolment and the strength of teachers. The Commission is now also giving due consideration to the social and educational needs of the community in which the College is located. The Academic viability is to be preferred over the previous financial and managerial aspects.

The new norms for determining the viability of a college lay down, among other things, that there should be at least four Departments in the college, and a minimum of ten permanent teachers excluding the principal and the director of physical education. Also, there should not be more than 20 students per teacher. This, however, can be relaxed in specific cases.

The norms provide in addition, that the annual expenditure on books and journals should be at least Rs. 15 per student and that on laboratory equipment at least Rs. 60 per student.

Enrolment trends in higher education

The latest figures available for student enrolment in universities and colleges show that while Commercial and Science courses have been drawing an increasing number of students, lesser numbers have been going in for courses in Humanities.

The enrolment in the Faculty of Arts in proportion to the total number of new students went down from 44.5% in 1975-76 to 40.6% in 1979-80. For Commerce, however, it rose from 17.1% in 1975-76 to 19.5% in 1979-80. The enrolment in Science has been steadily increasing since 1978 after a downward trend. From 18.2% in 1976-77, it had gone up to 19.2% in 1979-80.

Changes in percentages of enrolment in the professional courses have been only of a marginal nature.

The total number of students in 1979-80 was about 26,50,000 enrolled in 108 universities, 11 institutions deemed to be universities and 4558 colleges.

The average growth rate of enrolment during the decade 1970-71 to 1979-80 was four per cent per annum, as against 14 in the earlier decade, and 12 in the decade preceding that. In terms of years, the growth rate declined from 9.5% in 1970-71 to 1.2% in 1979-80.

UGC study stresses environment

A study of the hills, dams and forests in the Western Ghats points out that the interests of the weaker sections of society should be an important factor in the planning of irrigation and power projects so as to ensure that they are in harmony with the environment.

The study, financed by the University Grants Commission, alongwith some other scientific organisations, has brought out the fact that it is the local peasants and tribals. who have to bear the brunt of the immediate consequences of the development process involving exploitation of natural resources. The hardship can be avoided by proper planning to meet their basic needs like fuel and food, simultaneously with the construction of the project. Indiscriminate felling of trees for fuel leads to the devastation of the catchment area, causing heavy siltation of the dam under the project. The study, which included the Panshet Dam near Pune, also points out that the rich wild life, which was once harboured by the hilly slopes of the reservoir, has all but disappeared with the destruction of the tree cover.

The study conducted by Professor Madhav Gadgil of the Indian Institute of Science, Bangalore, suggests that while planning a development project, the whole gamut of the interacting natural resources of the region, as such, rather than of the specific project area alone, should be taken into consideration. This is necessary to make the project environmentally sound.

Personal

1. **Prof. Nihar Ranjan Ray, former Director, Indian Institute of Advanced Studies, Simla, has been appointed Chairman of the Indian Council of Historical Research.**
2. **Mr I.C. Puri, Chief Secretary to Punjab Government, has taken over as Acting Vice-Chancellor of Punjab Agricultural University.**
3. **Mr M. Kuttappan has taken over as Acting Vice-Chancellor of Kurukshetra University.**
4. **Dr A.S. Paintal, Director of Vallabhbhai Patel Chest Institute of Delhi University has been elected Fellow of the Royal Society of London.**

MEDICAL

Medical Council disfavours foreign degrees

The Medical Council of India has suggested to the Union Government to give up the practice of sending Indian students abroad for medical education under bilateral arrangements. According to the Council, there is enough scope within the country itself for both undergraduate and postgraduate medical education. There is no need for any arrangements by the Government or cultural bodies to send Indian medical students abroad for studies. Training in recognised institutions under renowned specialists for postgraduate Indian doctors may be useful and should be arranged by the Government in consultation with the Council.

The Council made these suggestions in response to a proposal of the Government for giving recognition to foreign medical degrees and allowing Indians holding these qualifications to register for practice in India.

Of late a number of requests have come for recognition and registration from Indian medical students in the Soviet Union, Britain, Czechoslovakia, Iraq, Iran; Nigeria and other African countries.

The Union Government has to amend Part II of the third schedule of the Indian Medical Council Act to include any qualification granted by a foreign medical institution which is not included in the second schedule. Before doing this, it has to consult the Medical Council.

The Council however feels that the standard attained and the training given, at several of these foreign institutions do not meet the Indian requirements. Therefore, it wants Indian students with foreign medical degrees to go through a screening test before they are permitted to register.

Psychiatric data centre for Chandigarh

A two-day workshop on "Standardised Analysis of Diagnostic and Socio-Demographic Data at the National Level" was held at the Post-graduate Institute, Chandigarh. Sixteen Psychiatrists —from Delhi, Bangalore, Madras, Bombay, Ahmedabad, Simla, Ludhiana and Chandigarh— participated in the workshop. Dr N.N. Wig, Head of the Department of Psychiatry, All-India Institute of Medical Sciences, Delhi, was the Chairman. It was resolved at the workshop to set up a national data centre at the P.G.I., under the supervision of Dr V. K. Verma, to co-ordinate the research work being carried out at various psychiatric centres in the country. The work done by the Central Bureau of Health Intelligence in this regard was considered inadequate by the participants. It was also decided to evolve a uniform diagnostic system on the pattern of the World Health Organisation system, for the treatment of psychiatric cases,

Conferences, Seminars & Workshops

April-July 1981

Date	Title	Venue	Sponsoring Body
April 1981	Application of display devices	Bangalore	Institution of Electronics and Telecommunication Engineers 2 Institutional Area, Lodi Road New Delhi-11003
April 1981	Public Health Problems in Desert Environment	Jaipur	SMS Medical College, Jaipur
April 1981	Extraneous Constraints Hindering Fertilizer Production	New Delhi	The Fertilizer Association of India New Delhi-110067
3—5 April '81	Technology Management for Power System	New Delhi	Institution of Engineers, Indraprastha Marg, New Delhi-2
6—10 April '81	Management of Socio-economic projects in Welfare agencies	Bombay	Tata Institute of Social Sciences PO Box 8313, Bombay 400083
6—11April '81	Geology for non-geology executives—Executive Development Programme (EDP)	Dhanbad	Indian School of Mines, Dhanbad 826 004
6—11 April '81	Eflective Trade Union Management	Hyderabad	Administrative Staff College of India (ASCI) Hyderabad 500 475
6—11 April '81	Population education for introducing the subject in the curriculum	Bombay	SNDT Women's University Bombay 400 020
6—18 April '81	Surface Mining—Executive Development Programme (EDP)	Dhanbad	Indian School of Mines Dhanbad 826 004
6 Apr.—11 May '81	Economics of Hospital Management	Bombay	Tata Institute of Social Sciences PO Box 8313, Bombay 400 083
8—12 April '81	Workshop on instrumentation in Developing countries in Asia	Bangalore	Indian Instt. of Science Bangalore 560 012
13—14 April '81	Seminar on Management of Saline/alkaline soils	Junagadh	Gujarat Agricultural University Ahmedabad 380 004
13—18 April '81	Computer applications in public sector undertakings	Hyderabad	Administrative Staff College of India, Hyderabad 500 475
13 Apr—13 May '81	Introduction to Hospital Management	Bombay	Tata Institute of Social Sciences PB No. 8313, Bombay 400 083
14—16 April '81	Photophysical and Photochemical process in chemical and biological systems	Mahabaleshwar	Indian Council for Medical Research, New Delhi 110 029
15—16 April '81	Poultry Farmer's symposium	Pantnagar	GB Pant University of Agriculture and Technology, Pantnagar 263 145
20—24 April '81	Multilevel Planning	Hyderabad	Administrative Staff College of India, Hyderabad 500 475
20—24 April '81	National Conference on Women's Studies	Bombay	SNDT Women's University Bombay 400 020
20—25 April '81	Problems of deep mining—EDP	Dhanbad	Indiang School of Mines Dhanbad 826 004
20—30 April '81	Curriculum Planning & techniques of teaching for teachers teaching handicapped children	Bombay	SNDT Women's University Bombay 400 020
20 Apr—2 May '81	Electronics, instrumentation and control in mines—EDP	Dhanbad	Indian School of Mines Dhanbad 826 004
21—26 April '81	Corporate Financial Management	Panjim	All India Management Association, 14 Institutional Area New Delhi 110003
Not confirmed	Maharaja Ranjit Singh	Patiala	Punjabi University, Patiala,
23—25 April '81	All India Hindi Research Seminra	Varanasi	Banaras Hindu University Varanasi 221 005
24 April 1981	Prevention & Rehabilitation of Heart Diseases	Calcutta	Cardiological Society of India 41 Creek Row, Calcutta 700 014
27 Apr— 26 May '81	Non-traditional diversified fish products and by-products	Cochin	Central Institute of Fisheries Technology, COCHIN 682 029
28—30 April '81	State level Seminar on Health Economics and Planning	Calcutta	Nat. Institute of Health & Family Planning, Munirka, New Delhi
April/May 1981	Seminar on Poplar	Pantnagar	Dept. of Horticulture GB Pant University of Agriculture & Tech. Pantnagar 263 145
May 1981	Microprocessors	Calcutta	Institution of Electronics & Communication Engineers 2 Institutional Area, Lodi Road New Delhi-3
1—15 May	Power System Planning, Control and Protection	Kanpur	Indian Institute of Technology Kanpur 208 016

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1—15 May 81	Symposium in Condensed Chromatin and Human Chromosomes	Bangalore	University Grants Commission Bahadur Shah Zafar Marg, New Delhi-2
1– 28 May '81	Indian Society and Culture	Varanasi	Banaras Hindu University Varanasi 221 005
1 May– 20 May '81	Summer Institute in Recent Advances in Agricultural Marketing	Coimbatore	Tamilnadu Agricultural University, Coimbatore-3
May 1981	Electric Welding	Bombay	Institution of Mechanical Engineers, PO Box 10146 : Bombay 400 001
4—7 May	Statistical Analysis of breeding data	New Delhi	Indian Agricultural Statistical Research Institute, Library Avenue, New Delhi 110 012
4—8 May 1981	Promoting your Agency	Bombay	Tata Institute of Social Sciences PO Box 8313: Bombay 400 083
4—9 May '81	Shaft sinking & tunnelling—EDP	Dhanbad	Indian School of Mines Dhanbad 826 004
4—18 May 1981	A course on non-linear vibration dynamics	Bangalore	Indian Institute of Science Bangalore 560 012
5—8 May 1981	All India Workshop on Role of Communication; its dimensions and prospects in family planning programme	New Delhi	National Institute of Health and Family Planning, Munirka New Delhi
6—21 May 1981	Summer School for Technical Translators (Russian)	Bangalore	Indian Institute of Science Bangalore 560 012
10—20 May 1981	Family Planning Workshop for Rajasthan Government	Ahmedabad	National Institute of Design Ahmedabad 380 007
11—16 May 1981	Workshop on preparing manuals for relief workers	Bombay	Tata Institute of Social Sciences PO Box 8313: Bombay 400 088
11—23 May 1981	Drilling engineering—EDP	Dhanbad	Indian School of Mines
11—31 May 1981	Advances in refrigeration and air conditioning—short course	Kanpur	Indian Institute of Technology Kanpur 208 016
15—28 May 1981	Pressure group politics in Indian Universities	Varanasi	Banaras Hindu University Varanasi 221 005
15 May—15 June	Summer Institute for P.G. teachers in physics	Varanasi	Banaras Hindu University Varanasi 221 005
18—23 May 1981	Application of seismological methods in mining and geology—EDP	Dhanbad	Indian School of Mines
18 May—7 June '81	Social Sciences and cybernetics in the study of management—short course	Kanpur	Indian Institute of Technology Kanpur 208 016
18 May—7 June '81	All India Summer Institute in Algebra	Indore	Department of Mathematics University of Indore: Indore-1
20—30 May 1981	Course for young businessmen	Hyderabad	Administrative Staff College of India, Hyderabad 500 475
23-27 May 1981	UNESCO Workshop on Translation activities and Information Centres	Bangalore	Indian Institute of Science Bangalore 560 012
25—30 May 1981	Geotechnical Engineering—EDP	Dhanbad	Indian School of Mines
June 1981	Systems Engineering Applications in Agriculture	Ludhiana	College of Agricultural Engg. Punjab Agricultural University Ludhiana
June (1st week)	Number Theory	Ootacamund	The Institute of Mathematical Sciences, Madras 600 020
1—6 June 1981	Satellite based computer networks	Bangalore	Indian Institute of Science Bangalore 560 012
1—6 June 1981	Software Management	Hyderabad	Administrative Staff College of India, Hyderabad 500 475
1—6 June 1981	Sales Management	Hyderabad	Administrative Staff College of India Hyderabad 500 475
1—28 June 1981	Summer Institute of Sociology of education for College teachers	Varanasi	Banaras Hindu University Varanasi 221 005
1 June—24 July '81	General Management for Senior Executives	Hyderabad	Administrative Staff College of India, Hyderabad 500 475
4—6 June 1981	State level Seminar on health economics & planning	Hyderabad	National Institute of Health and Family Planning, Munirka New Delhi.
7—27 June 1981	22nd Advanced Management Programme	Srinagar	All India Management Association, 14 Institutional Area, New Delhi-3
8—13 June 1981	A remote sensing tool in evaluating tectonics and mineral resources—EDP	Dhanbad	Indian School of Mines
8—17 June 1981	Advances in exploration technology—EDP	Dhanbad	Indian School of Mines
8 June—20 June '81	Production Management	Hyderabad	Administrative Staff College of India, Hyderabad 500 475

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8—22 June 1981	Training Workshop in Management of Economic Activities for Women Workers	Bombay	Int. Council of Social Welfare 175 Dr D.N. Road, Bombay 400 001
8 June—4 July '81	Management Development Programme for Senior Government Administrators	Hyderabad	Administrative Staff College of India, Hyderabad 500 475
14 June—4 July '81	Course on Semiconductor devices and technology	Bangalore	Indian Instt. of Science Bangalore 560 012
14 June—4 July '81	Organic reaction mechanisms	Bangalore	Indian Instt. of Science Bangalore 560 012
15—27 June '81	A course in programming methodology	Bangalore	Indian Institute of Science Bangalore 560 012
15 June—10 July '81	Diagnosis of prevailing food borne infections (livestock products) and intoxication and their prevention.	Bombay	Deptt. of Veterinary, Public Health and Epidermiology, Haryana Agricultural University, Hissar, Haryana
15 June—14 July '81	Agro-forestry in arid and semi-arid region	Jodhpur	Central Arid Zone Research Institute, Jodhpur 342 003
17 June—7 July '81	Herd Health—a lacunae in integrated animal production	Pantnagar	GB Pant University of Agriculture and Technology, Pantnagar 263 145
20 June—27 June '81	Management of Education System	Hyderabad	Administrative Staff College of India, Hyderabad 500 475
22—27 June '81	Surface & ground water hydrology—EDP	Dhanbad	Indian School of Mines
22—27 June '81	Geophysical Instrumentation—EDP	Dhanbad	Indian School of Mines
25—27 June '81	State level Seminar on health economics and planning	Bangalore	National Institute of Health and Family Planning, Munirka, New Delhi
29 June—4 July '81	Team Building & Conflict	Hyderabad	Administrative Staff College of India, Hyderabad 500 475
29 June—18 July '81	A course on modern concepts in efficient energy usage	Bangalore	Indian Institute of Science Bangalore 560 012

Subject Index

Date	Title	Venue	Sponsoring Body
Agricultural Sciences			
April 1981	Extraneous Constraints hindering fertilizer production	New Delhi	The Fertilizer Association of India
13—14 April '81	Seminar on management of saline/alkaline soils	Junagadh	Gujarat Agricultural University
15—16 April '81	Poultry Farmer's symposium	Pantnagar	GB Pat University of Agriculture and Technology
27 Apr—26 May '81	Non-traditional diversified fish products and by-products	Cochin	Central Institute of Fisheries Technology
April/May '81	Seminar on Poplar	Pantnagar	Department of Horticulture, GB Pant University of Agriculture and Technology
1 May—30 May '81	Summer Institute in Recent Advances in Agricultural Marketing	Coimbatore	Tamilnadu Agricultural University
4—7 May 1981	Statistical Analysis of breeding data	New Delhi	Indian Agricultural Statistical Research Institute
15 June—10 July '81	Diagnosis of prevailing food borne infections (livestock products) and intoxication and their prevention	Bombay	Deptt. of Veterinary, Public Health & Epidermiology, Haryana Agricultural Univ.
15 June—14 July '81	Agro-forestry in arid and semi-arid region	Jodhpur	Central Arid Zone Research Institute
17 June—7 July '81	Herd Health—a lacunae in integrated animal production	Pantnagar	GB Pant Univ. of Agriculture & Technology
Computer Sciences			
13—18 April '81	Computer applications in public sector undertakings	Hyderabad	Administrative Staff College of India
May 1981	Microprocessors	Calcutta	Institution of Electronics and Communication Engineers
1—6 June 1981	Satellite based computer networks	Bangalore	Indian Institute of Science

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1—6 June 1981	Software Management	Hyderabad	Administrative Staff College of India
15—27 June 1981	A course in programming methodology	Bangalore	Indian Institute of Science
Economics			
20—24 April '81	Multilevel Planning	Hyderabad	Administrative Staff College of India
Education			
6—11 April '81	Population education for introducing the subject in the curriculum	Bombay	SNDT Women's University
20—30 April '81	Curriculum Planning & techniques of teaching for teachers teaching handicapped children	Bombay	SNDT Women's University
15—28 May 1981	Pressure group politics in Indian Universities	Varanasi	Banaras Hindu University
1—28 June 1981	Summer Institute on Sociology of education for College teachers	Varanasi	Banaras Hindu University
20 June—27 June '81	Management of Education System	Hyderabad	Administrative Staff College of India
Engineering			
April 1981	Application of display devices	Bangalore	Institution of Electronics and Telecommunication Engineers
3—5 April 1981	Technology Management for Power System	New Delhi	Institution of Engineers
1—15 May 1981	Power System Planning, Control and protection	Kanpur	Indian Institute of Technology
May 1981	Electric Welding	Bombay	Institute of Mechanical Engineers
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History			
not confirmed	Maharaja Ranjit Singh	Patiala	Punjabi, University, Patiala
Industry & Labour			
6—11 April '81	Effective Trade Union Management	Hyderabad	Administrative Staff College of India
Languages			
23—25 April '81	All India Hindi Research Seminar	Varanasi	Banaras Hindu University
6—21 May 1981	Summer School for Technical Translation (Russian)	Bangalore	Indian Institute of Science
Library & Information Sciences			
23—27 May 1981	UNESCO workshop on Translation activities and Information Centres	Bangalore	Indian Institute of Science
Management			
21—26 April '81	Corporate Financial Management	Panjim	All India Management Association
18 May—7 June '81	Social Sciences and Cybernetics in the study of management—Short course	Kanpur	Indian Institute of Technology
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8 June—4 July '81	Management Development Programme for Senior Government Administrators	Hyderabad	Administrative Staff College of India
29 June—4 July '81	Team Building & Conflict	Hyderabad	Administrative Staff College of India
Medicine & Public Health			
April 1981	Public Health Problems in Desert Environment	Jaipur	SMS Medical College
6 Apr—11 May '81	Economics of Hospital Management	Bombay	Tata Institute of Social Sciences

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13 Apr—13 May '81	Introduction to Hospital management	Bombay	Tata Institute of Social Sciences
24 April 1981	Prevention & Rehabilitation of Heart Diseases	Calcutta	Cardiological Society of India
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25—27 June 1981	State level Seminar on health economics & planning	Bangalore	Nat. Instt. of Health & Family Planning
Mining Engineering			
6—18 April 1981	Surface Mining—Executive Development Programme—EDP	Dhanbad	Indian School of Mines
20—25 April '81	Problems of deep mining—EDP	Dhanbad	Indian School of Mines
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22—27 June 1981	Geophysical Instrumentation—EDP	Dhanbad	Indian School of Mines
22—27 June 1981	Surface & ground water hydrology—EDP	Dhanbad	Indian School of Mines
Science & Technology			
6—11 April 1981	Geology for non-geology executives—Executive Development Programme (EDP)	Dhanbad	Indian School of Mines
8—12 April '81	Workshop on instrumentation in Developing Countries in Asia	Bangalore	Indian Institute of Science
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14 June—4 July '81	Organic reaction machanisms	Bangalore	Indian Institute of Science
29 June—18 July '81	A course on modern concepts in efficient energy usage	Bangalore	Indian Institute of Science
Social Work			
6—10 April '81	Management of Socio-economic projects in welfare agencies	Bombay	Tata Institute of Social Sciences
4—8 May 1981	Promoting your agency	Bombay	Tata Institute of Social Sciences
11—16 May '81	Workshop on preparing manuals for relief workers	Bombay	Tata Institute of Social Sciences
8—22 June '81	Training Workshop in Management of Economic Activities for Women workers	Bombay	Int. Council on Social Welfare
Sociology			
20—24 April '81	National Conference on Women's Studies	Bombay	SNDT Women's University
1—28 May 1981	Indian Society and Culture	Varanasi	Banaras Hindu University

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New Delhi.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Agarwal, Manju Lata. Some problems in reliability theory. University of Delhi.

2. Akolkar, Shrikant Pandurang. Problems in advanced viscous flow theory. Nagpur University.

3. Chaudhuri, Sripati Ranjan. Some problems of vibrations infinite elasticity. University of Burdwan.

4. Das, Swapan Kumar. Some studies in the theory of finite topologies. *D.Sc.* University of Calcutta.

5. De, Jayasri. Some separation problems of ordinary differential equations. University of Calcutta.

6. Gangopadhyay, Alolika. Some problems of plasticity. University of Burdwan.

7 Kaushik, Vimla. Topological vector spaces, algebras and their operator theory. University of Delhi.

8. Lakshminarayana, Polaki China. Some heat transfer problems for flows past permeable beds and for fluids with microstructure. Andhra Uuiversity.

9. Muthukumar, S. Some results in approximation theory. University of Madras.

10. Nalinakshi, N. Studies in two dimensional developmental systems and languages. University of Madras.

11. Rathie, Arjun Kumar. A study of H-function and its applications to statistics. University of Rajasthan.

12. Samanta, Syamal Kumar. A study in the theory of fixed points of mappings. University of Burdwan.

13. Satyanarayana Murthy, Pullela Venkata. Valuations of rational composition algebras. University of Madras.

14. Subramanian, K.G. Studies in array languages. University of Madras.

Statistics

1. Agarwal, Bhupendra Narayana. On optimal designs of continuous sampling plans. Bhagalpur University.

2. Bhattacharyya, Deb Das. On some mathematical models for spares policy. University of Delhi.

3. Jagdish Saran. Fluctuations of sums of random variables and rank order statistics. University of Delhi.

4. Nanthi, K. Some limit theorems of statistical relevance on branching processes. University of Madras.

5 Suresh Chandra, K. Some limit theorems on stochastic models for time series and their statistical applications. University of Madras.

Physics

1. Amruthaiah, Koyyalmudi. A study of some even-even nuclei in the pseudo SU(3) weak coupling limit. Andhra University.

2. Boruah, Pradip Kumar. Studies on the correlation between radio and optical pulses from extensive air showers. Gauhati University.

3. Chaudhuri, Bijay Krishna. Study of phase transition in some crystals. *D.Sc.* University of Calcutta.

4. Das, Ranjit. Studies on the vibrational spectra of some aliphatic organic molecules in relation to their rotational isomerism. University of Calcutta.

5. Dhawan, Krishan. Study of physical properties of oriented polymers. University of Delhi.

6. Jain, Mahi Pal. Studies in radiation protection with special reference to applications of thermoluminiscence dosimetry. University of Delhi.

7: Manjit Kaur. Study of interactions at 50 GeV negative pions with emulsion nuclei in a pulsed magnetic field. Panjab University.

8. Mitra, Subhash. Investigations on the development of a proportional response photon counter and its application in the measurement of energy albedo of back scattered photons. University of Calcutta.

9. Nirmala, K.A. Structure determination of organic compounds by X-ray methods. Bangalore University.

10. Pathi Raju, Danthuluru Venkata. Studies on photo electric effect in some compounds around K-edge. Andhra University.

11. Rama Krishna Reddy, R. Spectroscopic studies on certain diatomic molecules. Sri Venkateswara University.

12. Ramanujam, G. Alagar. Contribution to the study of subluminal and super luminal phenomena in special relativity University of Madras.

13. Sarma, Kotturu Seetharama. Studies on photoelectric cross sections of low energy photons in light elements and their compounds. Andhra University.

14. Sharma, Kusum. Studies on some aspects of the weak and electromagnetic properties of Hadrons. Panjab University.

15. Sinha, Tuhin Kumar. Study of the dependence of transister characteristics on some physical parameters. University of Calcutta.

16. Swaminathan, S. Crystal structure studies on molecules of biological interest. University of Madras.

17. Taneja, Om Prakash. Electrical transport properties of InSb, Te and PbTe thin films and field effect studies on their MIS structures. University of Delhi.

18. Vijayalakshmi, B. Some studies on the theory of relativistic wave equations. University of Madras.

Chemistry

1. Ahuja, Subbash Chander. Thermodynamic properties of mixtures of some partially miscible liquid components. Panjab University.

2. Balasubramanian, M. Synthesis and characterisation of certain aromatic polymides University of Madras.

3. Bandyopadhyay, Ratan Kumar. Coordination compounds of uranium and their applications. University of Calcutta.

4. Bandyopadhyay, Rupendranath. Mechanistic studies on reactions of metal complexes. University of Calcutta.

5. Bandyopadhyay, Tapas Kumar A study of the metal complexes of some oxygen nitrogen donors. University of Calcutta.

6. Basu, Subhadra. Studies on inhibition of the corrosion of metals in relation to the electro-capillary action of organic corrosion inhibitors. University of Burdwan.

7. Biswas, Tanusri. Structural studies on leechi, Hirudo medicinalis skin glycoproteins. University of Calcutta.

8. Chakrabarty, Mihirkumar. Studies on the modification of fats. University of Calcutta.

9. Chakravorty, Biplab. Physico-chemical studies on the polyfunctional exchangers isolated from the soils of Eastern Himalayan Region. North Bengal University.

10. Chattopadhyay, Sparsamani. Studies on chemical modification of cotton and jute. University of Calcutta.

11. Das, Arun Kumar. Studies on the lipids of air-breathing fresh water fishes. University of Calcutta.

12. Durgakumari, Valluri. Studies in some solid complexes and coordination polymers. Nagpur University.

13. Dutta, Sankar Lal. Interaction of deoxyribonucleic acid with cationic dyes and metal ions. North Bengal University.

14. Gupta, Bal Krishan. Investigation on the chemical constituents of pharmacologically active plants. University of Jammu.

15. Gupta, Raghuvesh Kumar. Complex formation in molten salts: Association constants of cadmium and lead halide complexes in molten potassium nitrate—barium nitrate eutectic. University of Delhi.

16. Hebbar, Gopal Krishna. Ascorbate and drug metabolism. Marathwada University.

17. Jagat Jit Singh. Studies on the reactions of some new organometallic complexes of bivalent titanium, zirconium and hafnium with some organic thioligands. University of Delhi.

18. Jain, Vimal Kumar. Organic derivatives of arsenic and antimony. University of Rajasthan.

19. Jayaraman, P.S. Chlorinations with 1-chlorobenzotriazole. University of Madras.

20. Kadian, Ram Kanwar. Binary and ternary metal complexes of dehydracetic acid and its derivatives. University of Delhi.

21 Kalapurna, P.B. Polarographic study of the amino acid complexes of some group VIII metals. University of Madras.

22. Kaliyamurthy, K. Reaction kinetics in solution: Kinetics of polymerization initiated by Mu(III) acetate. University of Madras.

23. Kamini. Analytical applications of 3-hydroxy-2 methyl-1-1, 4-naphthoquinone mono (HMNQM), 2-methyl-1, 4-naphthoquinone monoxime (MNQM) and its thiosemicarbazone (MNTS). University of Delhi.

24. Kaushik, Ramesh Kumar. Studies on the effects of some organic heterocycles on the acid corrosion of pure nickel. University of Delhi.

25. Koul, Surinder. Studies on chemical constituents of Prangos pabularia, Adhatoda vasica and Glorosa superba including chemical transformation of their major constituents. University of Jammu.

26. Kumar, G. Studies in the synthesis of thienopyrroles. University of Madras.

27. Kundu, Satirani. Phytochemical studies on Indian medicinal plants. University of Calcutta.

28. Madan Lal. Enthalpies of mixing of some non-polar binary and ternary systems. Panjab University.

29. Malaithaj, M. Polymer chemistry: Synthesis and characterisation of some random copolyesters of poly ethylene terepthlate and p-hydroxybenzoic acids. University of Madras.

30. Manna, Sukumar. Studies on the natural products and reactions of heterocycles. University of Calcutta.

31. Murali Mohan, K. Studies in physical organic chemistry: Polarographic reduction and kinetics of acid hydrolysis of isonicotinoyl derivatives of acetophenones. Sri Venkateswara University.

32. Natarajan, M. Synthesis of coumarins, thiocoumarins and carbostyrils. University of Madras.

33. Padma Bai, R. Studies on the reactivities and chemical modifications of proteins. University of Madras.

34. Panchatsharam, V.S. Mechanistic studies on reactions of (i) N-chloro compounds, and (ii) Quinones. University of Madras.

35. Paynter, Bertille Mary. The solvent properties of dimethylsulphoxide. University of Kerala.

36. Ramachandra, Geetha. Biochemical studies on finger milet, eleusine coracana Gaertn. Bangalore University.

37. Ram Chander. Anodic oxide films and related properties of metals. Maharshi Dayanand University.

38. Ramakrishnan, S. Structural and solvent influences in some aromatic nucleophilic substitution reactions. University of Madras.

39. Sadasivam, V. Studies in terpenoids. University of Madras.

40. Sarkar, Tarani Kanta. Some studies on carbene reactions. North Bengal University.

41. Sasmal, Brajamohan. Mechanistic studies on some organic reactions. Berhampur University.

42. Satyanarayana, Atreyapurapu. Ligational behaviour of 2-hydroxy 1-naphthaldehyde thio semicarbazone and 4-(3-hydroxy, 2-naphthamido) thio semicarbazide. Andhra University.

43. Seth, Chand Kumar. Preparation and polarographic studies on some azothiobarbituric acids. University of Delhi.

44. Sinnur, Kusuma Hampangouda. Synthetic studies in the indole fields. Karnatak University.

45. Sri Rama Rao, D. Kinetics of the epoxidation of unsaturated systems. University of Madras.

46. Srinivasan, T.N. Effect of addition of other oxides, treatment with electrolytes and temperature on the surface properties and catalytic activity of zirconium (IV) oxide. Bangalore University.

47. Sudhakar, D. Graft copolymerization of vinyl monomers on to cellulose nitrate. University of Madras.

48. Sukhjinder Kaur. Studies in adsorption and surface area measurements of adsorbant carbons. Panjab University.

49. Suri, Jogishwar Lal. Investigation on the chemical constituents of pharmacologically active plants. University of Jammu.

50. Suryanarayana Rao, V. Polarographic studies on catalytic waves. Sri Venkateswara University.

51. Theerthalingam, T. Kinetics of polymerization: Vinyl polymerization by metal laurates in non-aqueous media. University of Madras.

52. Tyagi, Virendra Pal. Kinetics and mechanism of reactions of (i) 2, 5-xylenol-formaldehyde, and (*ii*) 2,3-xylenol-formaldehyde, and (*iii*) salgenin-formaldehyde in different media. University of Delhi.*

53. Vicekanandan, S.Physico-chemical studies of some reactions involving chloramine-T. University of Madras.

Earth Sciences

1. Dhar, Maharaj Krishen. Contribution to the palaeontology and stratigraphy of Fenestella shales and associated rocks of parts of Kashmir and Kistwar-Valleys, J & K State, India. Panjab University.

2. Kasipathi, Chintha. Geology mineralogy and origin of the chromite from parts of Peninsular India. Andhra University.

3. Rajesham, T. Studies on nepheline syenites and associated rocks of Kunduluru Area, Khammam District, Andhra Pradesh. Osmania University.

4. Rammohan, V. Geology of the area in and around Taramangalam, Omalur and Mettur Taluks, Salem District, Tamil Nadu. University of Madras.

5. Rangarao, Vajja. Mineralogy and geochemistry of the precambrian rocks of Wira Area, Khammam District, Andhra Pradesh. Andhra University.

6. Viswanadham, Devarakonda Venkta. Studies in environmental meteorology for selected urban centres. Andhra University.

7. Visweswara Rao, Koti. Studies on the geochemistry and mineralogy of manganese ore deposit of Srikakulam and Vizianagaram Districts, Andhra Pradesh, India. Andhra Pradesh.

Engineering & Technology

1. Joseph, George. Heat transfer in multiphase flow. University of Madras.

2. Kesava Rao, C. Single and two-phase flow in helical coils. Kakatiya University.

3. Natesan, S.C. Studies on the strength of steel fibre reinforced concrete composites. University of Madras.

4. Nayak, Hare Krishna. Evaluation of mineral fillers for sheet asphalt paving mixtures from the rheological response of the mixtures under creep loading. Sambalpur University.

5. Ramarajan, S. Stability of feedback control systems. University of Madras.

6. Singhal, Krishna Chandra. Development of shock tube and study of passage of shock wave at entry in divergent areas. Panjab University.

7. Sinha, Praphulla Kumar. On fluidized bed combustion of coal. University of Burdwan.

8. Vasant, Deo Prabha. RMS measurements. University of Cochin.

9. Venkataramani, V. Condensation of mixed vapours. University of Madras.

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Asian Regional Conference on University Physics Education, Penang, University of Science of Malaysia, 1977. *Proceedings.* Penang, Author, 1977. 102p.

Avakov, R.M., ed. *Future of education and the education of the future: Final report and documents of an IIEP seminar, Paris,* 1978. Paris, Unesco, IIEP, 1980. 369p.

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———. *Translating concepts into methods and programmes: Report of the National Workshop, Calcutta, 1978.* Delhi, Author, 1978. 27p.

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Lovell, R. Bernard. *Adult learning.* London, Croom Helm (c1980), 170p.

Mathur, J.C. *Adult education for farmers in a developing society.* Delhi, Indian Adult Education Association, 1972. vi, 233p.

McLevy, Catherine, ed. *Training of adult educators and literacy workers: Report of the National Workshop, Madras, 1978.* Delhi, Indian Adult Education Association, 1978. 51p.

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———. ———. ———. *Educational Research and innovation in Nepal: A report of a National seminar, Pokhara, Nepal, 1977.* Kathmandu, Author, 1977. iv, 116p.

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Sinha, Niroj. *University administration in India: With special reference to the universities in Bihar.* Patna, Janaki Prakashan, 1979. iv, ii, 331p.

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MARATHWADA AGRICULTURAL UNIVERSITY
PARBHANI
Advertisement No. MAU/1/81

Applications in the prescribed form are invited on or before 15-5-1981 for the following posts in the pay scale mentioned against each post.

Sr. No.	Designation of the post	Pay scale	No of posts
1.	Assistant Registrar	Rs. 600-30-750-EB-40-1150/-	1
2.	Assistant Comptroller	Rs. 600-30-750-EB-40-1150/-	1
3.	Section Officer	Rs. 500-20-700-25-900/-	5
4.	Assistant Section Officer	Rs. 395-15-500-20-700-Extn-20-800/-	7
5.	Senior Clerk	Rs. 335-15-500-20-580-Extn-20-680/-	16
6.	Junior Clark	Rs. 260-10-390-15-420-Extn-15-495/-	8

Qualifications

For the post at Sr. No. 1

(i) Bachelor's degree in Arts/Science/Commerce/Agriculture / Veterinary Science / Law / Engineering / Public Administration of any Statutory University/Institute.

AND

(ii) Atleast one year experience of teaching and/or extension education and/or research and/or administrative experience in the office of any University.

For the post at Sr. No. 2

Atleast Second class graduate of a recognised University with experience of financial and general administration in a gazetted or superior supervisory capacity for atleast three years with Govt. or business or in a University.

OR

A fully Chartered Accountant with at least two years experience.

For the post at Sr. No. 3

(i) Master's degree in Arts/Science/Commerce of any University with atleast 45% marks in the aggregate

AND

(ii) Atleast three years administrative experience in the Government/Semi-Government or in any office of the University, preferably in the office of the Agril. University.

OR

(i) Bachelor's degree in Arts/Science/Commerce of any University with atleast 45% marks in aggregate.

AND

(ii) Atleast five years administrative experience in Government/Semi-Government or in any University office, preferably Agril. University office.

For the post at Sr. No. 4
Essential

(i) Bachelor's degree in Arts/Science/Commerce of any University with atleast 45% marks in aggregate.

AND

(ii) Government Diploma in English/Marathi typing examination with minimum speed of 30 w.p.m. in English and/or 25 w.p.m. in Marathi.

AND

(iii) Atleast three years experience of working in office of Government/semi-Government or in any University office, preferably in Agril. University office.

OR

(i) Intermediate examination/first year of the Three year's degree course examination.

AND

(ii) Government Diploma in English/Marathi typing examination with minimum speed of 30 w.p.m. in English and/or 25 w.p.m. in Marathi.

AND

(iii) Atleast five years experience of working in office of the Govt./semi-Government or in any University office, preferably in Agril. University office.

For the post at Sr. No. 5

(A) (i) Bachelor's degree in Arts/Science/Commerce of any University with atleast 45% marks in aggregate.

AND

(ii) Government diploma in English/Marathi typing examination with minimum speed of 30 w.p.m. in English and/or 25 w.p.m. in Marathi.

AND

(iii) Atleast three years experience of working in Government office/semi-Government or in any University office, preferably in Agril. University office.

OR

(B) (i) S.S.C. Second Class with 45% marks in aggregate.

AND

(ii) Government diploma in English/Marathi typing examination with minimum speed of 30 w.p.m. in English and/or 25 w.p.m. in Marathi.

AND

(iii) Atleast five years experience of working in Government office/semi-Government or in any University office, preferably in Agril. University office.

For the post at Sr. No. 6

(i) S.S.C. or equivalent examination with atleast 45% marks in aggregate.

AND

Government diploma in English/Marathi typing examination with minimum speed of 30 w.p.m. in English and/or 25 w.p.m. in Marathi.

AND

Atleast six months experience of working in office of Govt./Semi Government or any University office preferably Agril. University Office.

OR

(ii) Bachelor's degree in Arts/Commerce/Science of any University with atleast 45% marks in aggregate.

AND

Government diploma in English/Marathi Typing examination with minimum speed of 30 w.p.m. in English and/or 25 w.p.m. in Marathi.

For the post at Sr. No. 6
(FOR UNIVERSITY PROJECT AFFECTED CANDIDATES ONLY)

S.S.C. or equivalent.

AND

Government diploma in English Marathi Typing Examination with minimum speed of 30 w.p.m. in English and/or 25 w.p.m. in Marathi. Candidate will have to pass the required typing examination within a period of one year from the date of joining the post, if he does not possess the typing qualifications. Age relaxable as per Government rules.

AGE

For the post at Sr. No. 1 and 2 not more than 30 years.

For the post at Sr. No. 3 to 6 minimum 18 years and maximum 25 years. Maximum age limit will be relaxable for all posts by 5 years for the candidates belonging to SC/ST/NT/DNT/OBC.

The age limit shall not apply to persons already in service of Central/State Government/This University or any other University/Institute recognised by this University.

Application forms for the posts at Sr. No. (1) and (2) can be obtained from the Comptroller, MAU, Parbhani at the cost of Rs. 2/- in the form of crossed Indian Postal Order in the name of the Comptroller, MAU, Parbhani and for these posts applications in the prescribed forms complete in all respect together with Crossed Indian Postal order of Rs. 8/- in the name of the Comptroller, MAU, Parbhani as registration fees should reach to the Registrar, MAU, Parbhani latest by 5.00 p.m. on 15-5-81.

Application forms for the posts at Sr. No. 3 to 6 can be obtained from the Comptroller, MAU, Parbhani free of cost only for **unemployed candidates** and should be submitted without registration fees to the Registrar, MAU, Parbhani latest by 5.00 p.m. on **15-5-1981**. Other candidates willing to apply for the post at Sr. No. 3 to 6 will have to obtain prescribed application forms at the cost of Rs. 2/- in the form of Crossed Indian Postal order in the name of the Comptroller, MAU, Parbhani latest by 5.00 P.M. on **15-5-1981.**

Incomplete applications in any form and those received after prescribed time and date will not be considered and no correspondence thereon will be entertained.

Reservation of post for SC/ST/NT/DNT/OBC etc. is as per Maharashtra State Government rules.

Reservation of post for physically handicapped persons is as per Maharashtra Government rules.

Request for forms must specify the name and Sr. No. of the post accompanied by self-addressed envelope atleast of the size of 23 cm x 10 cm with 00-65 paise stamp adhered to it. Separate applications shall have to be made for specific posts.

If considered necessary by the University the candidate shall have to appear for personal interview in the University's office at Parbhani at candidate's cost.

In the event of large number of applications received in response to this advertisement, to avoid inconvenience to all concerned, at the discretion of the Vice-Chancellor, limited number of candidates may only be invited for interview even though others not invited for interview might be satisfying the prescribed minimum qualifications.

Candidates already in service of the Central/State Government or any other organisations and those in the service of this University should necessarily apply through proper channel forwarding an advance copy to the undersigned. The advance copy should reach latest by 5.00 p.m. on **15-5-1981.** The applications to be received through proper channel should reach latest by 5.00 p.m. on **30-5-1981.** University will not be responsible for postal delay.

The fact that the posts are advertised does not mean that necessarily all the posts will be filled in.

Canvassing in any form will disqualify the candidate, for employment under this University.

H. S. Bonde
REGISTRAR

ALIGARH MUSLIM UNIVERSITY

ALIGARH

Advertisement No. 42/80-81

Applications on the prescribed form are invited for the following posts:

"Candidates must possess a Medical qualification included in the first or second schedule of Part II of the third schedule (other than licentiate qualifications) of the Indian Medical Council Act 1956. Holders of educational qualifications included in Part II of the third schedule should fulfil the conditions stipulated in Section 13(3) of the Indian Medical Council Act, 1956. Must possess a Basic University or equivalent qualification entered in Schedules under State/Central Registration Act.* (For the post at S. No. 3)

1. **Professor in Mathematics (Temporary), Deptt. of Mathematics, Scale Rs. 1500-60-1800-100-2000-125/2-2500 plus allowances.**

Qualifications

(i) A first or high second class Master's Degree in Mathematics of an Indian University or equivalent foreign qualification; (ii) A research Degree of a Doctorate standard or published work of a high standard; and (iii) Atleast ten years experience of teaching post-graduate classes and guiding research.

2. **Reader in Civil Engg. (Public Health) (Plan Post), Deptt. of Civil Engg. scale Rs.** 1200-50-1300-60-1900 **plus allowances.**

Qualifications

Good academic record with a Doctor's Degree in a relevant field. About 5 years experience of teaching and/or research and development.

Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in the institution or in an industry.

OR

In the case of persons to be recruited from industry or professional fields, candidate should possess good academic record with recognised professional work of about 7 years which should include innovation and/or research and development.

3. **Lecturer in Neuropsychiatry, Medicine Deptt. scale Rs.** 700-40-1100-50-1600 **plus allowances**

Qualifications

M.D. (Psychiatry), M.D. (Psychological Medicine), Speciality Board of Psychiatry and Neurology (USA) M.D./M.R.C.P. in Medicine with Diploma in Psychological Medicine.

The requisite recognised postgraduate qualification in the subject and 3 years teaching experience as Tutor/Registrar Resident in Psychiatry or Medical Officer Incharge of a Psychiatric Clinic/Mental Hospital, of which one year should be after postgraduate qualification.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) either personally or by sending a self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is **30th April 1981.** Incomplete application and those received late may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single Second Class Railway fare only.

Mahmood Ali
REGISTRAR

THE UNIVERSITY OF BURDWAN

RAJBATI : BURDWAN
WEST BENGAL

Advertisement No. 8/80-81

Dated, 30th March, 1981

Applications in the prescribed form are invited for the post of Lecturer in Statistics for the Department of Mathematics in the approved scales of pay of Rs. 700-40-1100-50-1600/- with allowances and other benefits according to University Rules.

Minimum Qualifications

(a) A doctor's degree or published research work of an equally high standard, and

(b) Consistently good academic record with First or high Second Class (B in the seven point scale) Master's Degree in the relevant subject or an equivalent degree of a foreign University.

Desirable Qualification
Specialisation or Proficiency

Mathematical Statistics/Multivariate Analysis/Econometrics/Industrial Statistics/Bio-Statistics.

The University Council, may on recommendation of the appropriate Selection Committee, waive any of the requirements in view of the candidates specialised knowledge in the subject. The choice of the Committee may not necessarily be confined to those who apply formally.

For application form and other information apply to the Registrar with a self-addressed stamped (0.50 p). envelope (9" x 4").

Last date for submission of applications with the requisite fee of Rs. 5/- is **April 30, 1981.**

A.K. Chaudhuri
REGISTRAR

PUNJABI UNIVERSITY PATIALA

Advertisement No. 54/SPS/PRO /Estt./80

Applications are invited for the following posts :

1. **READERS**

(Three in Business Management and One in Russian)
(Grade : Rs. 1200-50-1300-60-1900).

Qualifications

(a) Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) Research or (ii) Innovation in teaching methods or (iii) Production of teaching materials.

(b) About 5 years experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position. This condition/relaxable in the case of candidates with outstanding research work.

Two of the three posts of Readers in Business Management are meant for areas of Materials Management and Marketing Management and the third post is for Production Management or Personnel Management and Industrial Relations.

2. **LECTURER IN PERSIAN** (One)
(Grade Rs. 700-40-1100-50-1600)

Qualifications

(a) A Doctor's degree or research work of an equally high standard in the relevant subject, and

(b) Consistently good academic record with Ist or high second class (B in the seven point scale) Master's degree in a relevant subject or an equivalent degree of a foreign University.

(c) Qualifications prescribed in (b) above are relaxable in case the research work of a candidate as evident either from his thesis or from his published work is of a very high standard. If a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person prossessing consistently good academic record (Weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research Laboratory/organization on the condition that he will have to obtain Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements.

Specialization

(a) (i) History of Persian Literature.
(ii) History of Ancient Persia.

(b) Working knowledge of Arabic.

(c) Preference will be given to the candidate possessing efficiency in teaching through Punjabi medium in addition to English and Urdu.

3. **LECTURER IN RUSSIAN** (One)
(Grade Rs. 700-40-1100-50-1600)

(a) and (b) same as in the case of post 2 above.

(c) Qualifications prescribed in (b) above are relaxable in case the research work of a candidate as evident either from his thesis or from his published work is of very high standard. If a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing consistently good academic record may be appointed provided he has done one year post M.A. diploma course in the teaching of foreign language concerned from a University on the condition that he will have to obtain Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

4. **JUNIOR RESEARCH FELLOW: (U.G.C.)** (Two)
Department of Zoology @ Rs. 600/- p.m. (all inclusive)

Qualifications

Junior Fellowship is open to persons preferably below the age of 30 years, who have obtained a Master's degree of a recognised University in the first or high second division (with at least 55% marks or B in the seven point grade system).

5. **RESEARCH SCHOLAR** (One)
in Zoology Department (Tenable for two years in the first instance at Rs. 400/- p.m. all inclusive)

Qualifications

Candidates should possess at least second class Master degree with at least one year teaching/research experience after obtaining Master's Degree provided that the condition of experience may be relaxed in the case of first class M.A.'s/M.Sc.'s provided further that a candidate with at least 55% marks both in B.A./B.Sc. and M.A./M.Sc. could also be considered in case no first class M.A./M.Sc. is available.

General

Candidates for teaching and research posts should possess working knowledge of Punjabi upto Punjabi Praveshka standard. Persons from outside Punjab could however be considered for appointment but they will be required to give an undertaking in writing that they will acquire the requisite qualifications in Punjabi within a period of two years.

Higher start within the grade admissible depending upon the ability and experience of the candidate. House rent and Dearness allowance, Provident Fund and Medical facilities according to the University rules.

Applications complete in all respects on the prescribed form accompanied by a crossed Postal Order worth Rs. 5/- (Rs. 2/- for candidates belonging to Scheduled Caste/Tribes and Backward Classes) drawn in favour of the Registrar, Punjabi University, Patiala should reach the University by **24-4-81**. The forms can be had from the Production and Sales Officer, Publication Bureau, Punjabi University, Patiala on payment of Re. 1/- by sending a crossed Indian Postal Order drawn in favour of the Registrar, Punjabi University, Patiala, alongwith a self addressed envelope of the size of 25 x 10 cms. Stamped with 30 paise postage which should be superscribed at the Top in bold letters REQUEST FOR APPLICATION FORM FOR THE POST OF ——.

Persons already in service should apply through proper channel. Government servants who are not in a position to submit their applications through proper channel before the due date and regular applications through proper channel by **27-4-81**.

REGISTRAR

ALIGARH MUSLIM UNIVERSITY
ALIGARH

Advertisement No. 1/81-82

Applications, on the prescribed form, are invited for the following posts:

1. **Training and Placement Officer, ZH College of Engg. and Technology, Scale Rs. 1500-60-1800 plus allowances.**

Qualifications

(a) A first or high second class basic degree in Engineering.

(b) Postgraduate degree in Engineering.

(c) 10 years experience of which atleast three years should be in industry and two years in teaching/research with a senior position in Industrial/Teaching/research organisation.

Desirable

Experience of supervising or arranging practical training and placement of Engg. graduates in Industry and of looking after students welfare.

2. **Radiotherapist, JN Medical College Hospital, Scale Rs. 455-15-560-EB-20-700 plus allowances.**

Qualifications

B.Sc. or equivalent. Passed X-Ray Technician's Training in Radiography. Experience in Radiotherapy work as a Technician for atleast 5 years in a Teaching Institution.

Note: Qualifications are relaxable by the Selection Committee.

3. **Technical Assistant (Temporary but likely to become permanent) Pharmacology Department, scale Rs. 425-15-500-EB-15-560-20-700 plus allowances.**

Qualifications

B.Sc. with Chemistry, Botany and Zoology with some experience of Lab. work in the job or trade.

Desirable

Experience in Neuropharmacological Techniques.

4. **Technical Assistants (2 plan posts), P.S.M. Department, Scale Rs. 425-15-500-EB-15-560-20-700 plus allowances.**

Qualifications

B.Sc. with atleast three years laboratory experience in the field of Preventive and Social Medicine/Pathology/Bacteriology in a Medical College.

Qualification is relaxable in suitable and highly experienced candidates.

Desirable

Preference to those with experience of Public Health Laboratory work.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) either presonally or by sending a self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is **1st May 1981**. Incomplete applications and those received late may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class railway fare only.

Mahmood Ali
REGISTRAR

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI

Advertisement No. Aca. III/3/81.

Applications are invited for the following posts:

I. SCHOOL OF LANGUAGES

Centre of Linguistics and English

1. Professor/Senior Fellow of Linguistics

(a) Consistently good academic record with at least a high second class Master's degree in Linguistics or an equivalent qualification from an Indian/foreign University.

(b) A doctor's degree or published work of an equally high standard; and

(c) About ten year's experience of teaching and/or research in Linguistics.

Desirable

(a) Specialisation in Applied Linguistics.

(b) Experience of guiding doctoral research in Linguistics.

2. Associate Professor/Fellow in English (Leave vacancy)

(a) Consistently good academic record with at least a high 2nd Class Master's degree in English or its equivalent qualification from an Indian/foreign University.

(b) A doctor's degree or published work of an equally high standard; and

(c) About five years' experience of teaching and/or research.

Desirable

(a) Specialization in Linguistics and preferably in syntax/semantics.

(b) Experience of teaching English as a foreign Language and organising ESP courses.

II. SCHOOL OF INTERNATIONAL STUDIES

Centre for International Politics and Organization.

3. Associate Professor/Fellow or Assistant Professor (Temporary against leave vacancy)

Associate Professor/Fellow
Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's degree in any of the Social Sciences or its equivalent qualifications from an Indian/foreign University.

(b) A Doctor's degree or published work of an equally high standard in the field of International Organization.

(c) About five years' experience of teaching and/or research in the field of International Organization.

Desirable Qualifications

(a) Some experience of guiding research in International Organization.

(b) Some practical experience of working in one of the International Organizations.

Assistant Professor
Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's degree in any of the Social Sciences or its equivalent qualification from an Indian/foreign University;

(b) A Doctor's degree or published work of an equally high standard in the field of International Organisations.

Desirable Qualifications

Some teaching and/or research experience in the field of International Organisations.

Note: There is only one temporary vacancy of an Associate Professor/Fellow; the University will consider applications for both Associate Professor/Fellow and Assistant Professor or either only.

III. SCHOOL OF SOCIAL SCIENCES

Zakir Husain Centre for Educational Studies

4. Assistant Professor in Psychology of Education (Temporary against leave vacancy)

Essential Qualifications

(a) Consistently good academic record with at least a high 2nd Class Master's degree in Psychology or its equivalent qualification from an Indian/Foreign University;

(b) A doctor's degree or published work of an equally high standard.

Desirable Qualifications

(1) Experience of conducting multivariate analysis and of data processing including computer programming in the field of Psychology of education.

(2) High aptitude for, and ability to guide research in psychology of education.

(3) Some teaching experience preferably in the field of educational studies.

Centre for the Study of Social Systems

5. Associate Professor/Fellow

Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's degree in Social Anthropology/Sociology or its equivalent qualification from an Indian/Foreign University;

(b) A doctor's degree or published work of an equally high standard in Social Anthropology/Sociology; and

(c) About 5 years' experience of teaching and/or research in Social Anthropology/Sociology.

Area of Specialisation required—One or more of the following:

(i) Comparative Study of Complex Societies and their dynamics.

(ii) Kinship and Social structure.

(iii) Concepts and methods in the anthropological Study of complex societies.

Desirable

Some experience in guiding research at the M.Phil/Ph.D. levels.

6. Assistant Professor

Essential Qualifications

(a) Consistently good academic record with at least a high second Class Master's degree in Sociology or its equivalent qualification from an Indian/Foreign University;

(b) A Doctor's degree or published work of an equally high standard in Sociology;

Area of Specialisation required—One or both of the following:

(i) Sociology of professions — with special reference to law.

(ii) Social research methods.

Desirable

Experience of teaching post-graduate classes for at least 2 to 3 years.

7. Assistant Professor (Temporary)

Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's degree in Sociology or its equivalent qualification from an Indian/Foreign University;

(b) A doctor's degree or published work of an equally high standard in Sociology;

Area of Specialisation required—One or both of the following:

(i) Sociology of rural development and modernization.

(ii) Analysis of comparative structures and change.

Desirable

Experience of teaching or research for at least 2 to 3 years.

Provided that in the case of Assistant Professors if the Selection Committees are of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (a) above.

Provided further if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable a person possessing a consistently good academic record (weightage being given to M. Phil or equivalent degree or research work of quality) may be appointed provided he/she has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Scales of Pay

1. Professor/Senior Fellow
   Rs. 1500-60-1800-100-2000-125/2-2500.
2. Associate Professor/Fellow
   Rs. 1200-50-1300-60-1900.
3. Assistant Professor
   Rs. 700-40-1100-50-1600.

Relaxation in any of the qualifications may be made (a) in favour of persons of eminence or of high academic/professional distinction and (b) in exceptional cases where adequately qualified persons are not available but are otherwise found suitable for the respective positions. It will also be open to the University to consider the names of suitable candidates who may not have applied.

The selected candidates will be expected to participate in the teaching and research programmes in the concerned disciplines in other Schools of the University as well as in the programmes offered in their own Centres of Studies.

Nornally appointment of Fellows is made on contract basis for a period ranging from one to three years.

Benefits of C.P. Fund-cum-Gratuity/G.P. Fund-cum-Pension-cum-Gratuity are available as per University rules.

Persons already in employment should route their applications through proper channel.

Due consideration will be given to candidates belonging to Scheduled Caste/Scheduled Tribe at the level of Assistant Professor.

Second class (mail) rail fare (both ways) will be paid to candidates invited to appear for interview from outstation by the shortest route.

Applications separate for each post, on the prescribed form, obtainable free of cost from the Section Officer (Acad. Branch-III) of the University by sending him a self-addressed and stamped envelope (affixing postage stamps worth Rs 02.85) of 23 cm x 10 cm. size, should reach the Deputy Registrar (Academic), Jawaharlal Nehru University, New Mehrauli Road, New Delhi-110067, latest by **11-5-1981.**

Candidates from abroad, applying for the faculty positions, may apply on plain paper, (but their applications should reach the University by the last date) furnishing all the relevant informations such as their name, date and place of birth, marital status, nationality; state of domicile; postal and permanent addresses; father's name and address; academic and professional attainments; full details of (a) publications, and (b) research projects undertaken; language(s) known; details of visits to foreign countries; and the names and addresses of at least two persons well acquainted with the candidate's professional work who should also be requested by the candidate to forward to the Deputy Registrar (Academic) confidential report-concerning the candidate.

G.B. PANT UNIVERSITY OF AGRICULTURE & TECHNOLOGY

PANTNAGAR (NAINITAL) U.P.

Competitive Entrance Examination for Admission to Undergraduate Programmes

Admission Notice, 1981-82

Admission to the First year of Bachelor of Science Agriculture and Animal Husbandry, Bachelor of Veterinary Science and Animal Husbandry and Bachelor of Science (Home Science) and two-year diploma in Home Science will be made on the result of the Entrance Examination to be held on Sunday the **31st May, 1981** at the following centres :

NAME OF THE CENTRES

Centres within the State

1. Agra
2. Allahabad
3. Dehradun
4. Jhansi
5. Kanpur/Lucknow
6. Pantnagar
7. Varanasi/Gorakhpur
8. Roorkee/Meerut

Centres outside the State

1. Delhi
2. Hyderabad/Bangalore
3. Patna
4. Udaipur

MINIMUM QUALIFICATIONS FOR ELIGIBILITY

I. Bachelor of Science Agriculture and Animal Husbandry

Intermediate Agriculture/Science with Mathematics or Biology Examination of Board of High School and Intermediate Education U.P., Allahabad, or equivalent examinations.

II. Bachelor of Veterinary Science and Animal Husbandry

Intermediate Science with Biology/Agriculture of Board of High School and Intermediate Education U.P., Allahabad or equivalent Examination.

III. Bachelor of Science (Home Science) and Diploma in Home Science

High School examination of the U.P. Board of High School and Intermediate Education U.P. Allahabad with Science or Arts or equivalent examinations.

Note: Candidates appearing in any of the qualifying examinations mentioned above are also eligible to appear but their admission will be subject to their passing the qualifying examination by **15-7-1981**

The application forms along with the Information Brochure may be obtained by sending a crossed Bank Draft for Rs. 8/- drawn on the State Bank of India, Pantnagar branch or the United Commercial Bank, Pantnagar branch, payable to the Comptroller, G.B. Pant University of Agriculture & Technology, Pantnagar, along with a self-addressed envelope (28 x 13 cms) stamped worth Re. 1.50 to the Registrar, or may be obtained from the office of the Registrar on any working day between 10.00 A.M. and 1.00 P.M. by payment of Rs. 8/- in cash.

AGE LIMIT

The maximum age limit is 22 years as on 30th November, 1981 (relaxable 3 years for Scheduled Castes, Scheduled Tribes and Backward Classes).

Last Date for Submitting Application Forms

Date
(i) 30th April, 1981
(ii) -do-
(iii) -do-
(iv) 16th May, 1981 with late fee of Rs. 15/-

Degree Programme	Examination fee
(i) B.Sc. Ag. & A.H.	Rs. 45/-
(ii) B.V.Sc. & A.H.	Rs. 45/-
(iii) B.Sc. (Home Science)/ Diploma in Home Science.	Rs. 45/-
(iv) For all the above programmes for Pantnagar Centre only.	Rs. 60/-

For further details please contact office of the Registrar.

O.S. Misra
REGISTRAR

UNIVERSITY OF JABALPUR

JABALPUR

NOTIFICATION

No. Estt./81/1053 Dt. 9-4-81

The last date for receipt of applications for various teaching posts, published by this office advertisement No. Estt./81/7 dated 24-2-1981, is hereby extended upto 30th April, 1981.

REGISTRAR

Anekant Education Society's

TULJARAM CHATURCHAND COLLEGE, (ARTS, SCIENCE & COMMERCE)

BARAMATI (Dist. Pune)

WANTED

JUNIOR COLLEGE

Part Time : Lecturer in Mathematics.
Full Time : Lecturers in Marathi, Commerce, Physics, Chemistry, Botany.
Qualifications : Minimum Second Class Bachelor's and Master's Degree with B.Ed. in the subject.
Scale of Pay : Rs. 500-20-700-25-900.

Only B.C. Candidates should Apply.

SENIOR COLLEGE

Full Time : Lecturers in Physics, Botany, Zoology Statistics and Defence Studies.
Qualifications : Consistently good academic record and at least Higher Second Class or B+(B Plus) at Master's Degree & M Phil or Ph.D.
Scale of Pay : Rs. 700-40-1100-50-1300-Assessment-50-1600.

B.C. Candidates Preferred.

Apply to the undersigned or on before **25/4/1981** in the prescribed form available in the office on payment of Rs. 2/- by I P.O. or M.O. and self addressed stamped (35 paise) envelope.

Dr. J. K, Godha
PRINCIPAL

Indian School of Mines

DHANBAD-826004

No: 615120/2/81 Dated: Mar 10, 1981

Admission to Postgraduate Engineering Programmes 1981-82

1. Applications are invited from candidates possessing requisite qualifications as indicated below for admission to the following postgraduate ENGINEERING programmes being offered at the Indian School of Mines, which is deemed to be University under the UGC Act:

No	Programme	Department	Eligibility Qualifications
E-I	CISM/DISM/M Tech in Industrial Engg and Management (Oriented towards mineral industries—see Note A)	Industrial Engineering and Management	Degree (or equiv) in Engg with at least six months industrial training
E-II	One-year DISM in Drilling Engg.	Engineering and Mining Machinery	Degree (or equiv) in Mech/Min/Aut/Prod Engg or Min Machinery.
E-III	One-year DISM Mining Machinery	Engineering and Mining Machinery	Degree (or equiv) in Min Mach/Mech/Elec/Electronics/Min Engg.
E-III (PT)	Two-year part-time DISM Programme in Mining Machinery (Evening classes)	Engg and Mining Machinery	Degree (or equiv) in Min/Min Mach/Mech/Elect/Electronics Engg.
E-IV	One-year DISM in Mineral Engg	Chemistry, Fuel and Mineral Engg	Degree (or equiv) in Chem/Min/Mech/Met/Elec Engg. OR M Sc in Ore Dressing/Appl Geology.
E-V	One-year DISM in Fuel Engg	Chemistry, Fuel and Mineral Engineering	A degree in Fuel/Chem/Min/Met/Mech/Elec Engg. or equivalent.
E-VI	One-year DISM in Min Engg.	Mining Engineering	Degree (or equiv) in Min Engg
	(Specialisations offered: Mine Planning & Design, Rock Mechanics, Environment)		
E-VII	Two-year M Tech (Opencast Mining)	Mining Engineering	Degree (or equiv) in Min Engg or Civil/Elect/Mech Engg or M Sc in Appl Geology (with one year experience in Opencast Mines in case of non-mining candidate.
E-III—M	One-year M Tech (Min Machinery)	Engg & Min Mach	DISM in Min Machinery
E-IV—M	One-year M Tech (Minl Engg)	Chem, Fuel & Minl Engg	DISM in Mineral Engg
E-V—M	One-year M Tech (Fuel Engg)	Chem, Fuel & Minl Engg	DISM in Fuel Engg
E-VI—M	One-year MeTech (Mining Engg)	Mining Engg	DISM in Min Engg

Note (A) : Programme E-I Consists of three terms of course work, each of 12—week duration. A student successfully completing one term is awarded the postgraduate certificate of CISM. A student completing two terms, with additional guided project work of 4—month duration is awarded the postgraduate diploma of DISN, while a student completing all the three terms with guided research work for one year is awarded the M Tech degree in Industrial Engg and Management.

Note (B) : For Programmes E-III—M to E-VI—M, there is only guided project work. For candidates working as external candidates, the project shall normally be of two-year duration.

2.1 In each case a candidate should have obtained at least 60% marks in the qualifying examination—relaxable to 55% for SC/ST candidates, for sponsored candidates and for those with field/research experience or special aptitude for research.

2.2 Candidates shall have to appear at a written test (of about two-hour duration) and *viva-voce* at the SCHOOL on the dates intimated. No TA shall be paid for attending these tests.

2.3 Only 6-12 candidates may be admitted in each course depending on needs and circumstances. 20% of the seats are reserved for SC/ST candidates, it available; otherwise they will be thrown open.

3.1 Preference will be given to *sponsored candidates*. (sponsorship in this context means retention of lien on post and grant of suitable allowance). Application of sponsored candidates should carry suitable endorsement to this effect by the employer.

3.2 **Scholarships**: Unsponsored students are eligible for a scholarship of Rs. 400/- p.m. for a period not exceeding 12 months. (—upto 24 months for programmes E-I and E-VII) provided that they have obtained at least 60% or 55% marks, as the case may be, in the qualifying examination.

Students of Programmes E-III (PT) are NOT eligible for any scholarship, as also external students of Programmes E-III—M to E-VI—M.

4.1 **Procedure for Applying**: Application forms along with programme particulars can be obtained by sending a Bank Draft or crossed postal order (where banking facilities are not available) for a sum of Rupees Five only, made payable to the Registrar, Indian School of Mines, Dhanbad-826004, along with a self-addressed unstamped envelope of size 23 cms. x 10 cm.

4.2 **LAST DATE FOR RECEIPT OF COMPLETED APPLICATIONS : May 11, 1981.**

S.P. Varma
REGISTRAR

IPB/4935

NOTIFICATION

COMMON ENTRANCE EXAMINATION FOR B.E./B.TECH/B.ARCH. ADMISSIONS 1981-82

Jawaharlal Nehru Technological University, Hyderabad will conduct a Common Entrance Examination on behalf of (i) Andhra University, (ii) Jawaharlal Nehru Technological University, (iii) Osmania University and (iv) Regional Engineering College, Warangal (Kakatiya University) for admission to the 1st year of the 4-year B.E./B.Tech. (a) Civil, (b) Chemical, (c) Electrical/Electrical and Electronics, (d) Electronics and Communication, (e) Mechanical, (f) Mechanical Marine, (g) Metallurgical, (h) Mining Engineering courses and 5-year B.Arch. courses of study in their respective Constituent Colleges/ Institutions for 1981-82 academic year.

1981-82 SESSION

1. (a) Eligibility for admission to Institutions other than Regional Engineering Colleges.

Candidates of Indian Nationality belonging to Andhra Pradesh or whose parents/spouses are working in Public Sector undertakings, Universities, Andhra Pradesh State Government, Central Government or Quasi-Government organisations within the State of Andhra Pradesh and who have passed or who are appearing for the two-year Intermediate Examination (10+2 stage) conducted by the Board of Intermediate Examination, Andhra Pradesh (i) with Mathematics, Physics and Chemistry as Optional subjects (ii) with vocational courses in the fields of Engineering and Technology or any other examination recognised as equivalent thereto by the respective Universities and Diploma holders in Engineering and Architecture awarded by State

Board of Technical Education and Training, Andhra Pradesh are eligible for appearance at the Common Entrance Examination for admission to the 1st year of the following courses:

(i)	B. Tech./B.E. Civil Engineering	4 years duration
(ii)	B. Tech./B.E. Mechanical Engg.	
(iii)	B.E./B.Tech./Electrical Engg./Electrical and Electronics Engg.	
(iv)	B. Tech./B.E. Electronics and Communication Engg.	
(v)	B.Tech. Chemical Engg/Technology	
(vi)	B.E. Mining Engg.	
(vii)	B. Tech. Metallurgical Engg.	
(viii)	B.E. Mechanical Marine Engg. (A.U.)	
(ix)	B. Architecture	5 years duration

Please see G.O.P. 646 Education (W) Dt. 10-7-79 regarding eligibility for admission to the Common Entrance Examiration.

(b) Eligibility for admission to Regional Engineering Colleges

Candidates who have studied and passed in the qualifying examination from any of the Institutions in Andhra Pradesh are eligible for admission to the 15 Regional Engineering Colleges against the Andhra Pradesh quota of seats and they must also take this Common Entrance Examination. They will have to apply separately for admission to the Principal, Regional Engineering College, Warangal-506004 and they may see the notification to be issued by the Principal, Regional Engineering College, Warangal in this regard.

(c) Candidates who have passed the qualifying examination compartmentally are also eligible.

2. Candidates who do not satisfy the eligibility conditions under para 1(a) and 1 (b) **are not eligible to apply**/and applications if received will be rejected and no refund of fees paid, if any will be made.

3. Candidates seeking admission to the various Engineering Colleges under the respective Universities will have to separately apply for admission to those Colleges for which a separate notification will be issued by the respective Universities/Institutions.

4. Application forms :

Application forms can be had from any one of the following :—

(i) Principal, Regional Engineering College, Warangal-506004
(ii) Principal, Andhra Univ. Engineering College, Waltair-530003.
(iii) Principal, Osmania Univ. Engineering College, Hyderabad-500007.
(iv) Principal, College of Engineering, Anantapur-515002.
(v) Principal, College of Engineering, Kakinada-533003.
(vi) Principal, Nagarjunasagar Engineering College, Hyderabad-500488.
(vii) Principal, College of Fine Arts and Architecture, Hyderabad-500488
(viii) Principal, Osmania Univ. College of Technology, Hyderabad-500007
(ix) Convener, Common Entrance Examination Committee, Hyderabad-500038.

on requisition, enclosing (a) a demand draft on any scheduled Bank for Rs. 5/- towards cost of application form and Instructions to candidates, payable at Hyderabad to CONVENER, COMMON ENTRANCE EXAMINATION COMMITTEE C/O JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD. Money orders, Postal Orders, Cheques or Cash will not be accepted and (b) a self addressed thick envelope of size 30 cms X 20 cms with postage stamps of Rs 1.25 affixed.

5.	Sale of applications will commence from	8th April, 1981
	Last date for sale of applications	30th April, 1981
	Last date for receipt of filled-in application forms either by post or in person	6th May, 1981
	Date of Entrance Examination SUNDAY	7th June, 1981 10-00 A.M. to 1.00 P.M.

6. Further particulars can be seen in the "Instructions to the candidates" supplied along with the application forms.

7. Candidates who are appearing for any of the qualifying examinations referred to in para-1 are also eligible to sit for the Entrance Examination but then admission to the various courses will be subject to their passing the qualifying examination irrespective of merit in the Entrance Examination.

8. All correspondence regarding Entrance Examination shall be made to :

Convener
Common Entrance Examination Committee
C/O Nagarjunasagar Engineering College
J.N.T. University Post Office
HYDERABAD-500488

Telephone Nos. 30178/35078

CONVENER
COMMON ENTRANCE EXAMINATION COMMITTEE
1981-82.

NORTH-EASTERN HILL UNIVERSITY
LOWER LACHAUMIERE
SHILLONG-793001

No. F. 1-4/Estt./1/81/237 **Dated the 30th March, 1981**

Applications are invited for the following posts in the College of Agriculture Medziphema, Nagaland of the University.

Sl. No.		No. of vacancy	Scale of pay
1.	Associate Professor/Reader in Agronomy	1	Rs. 1200-50-1500-60-1900/-
2.	Associate Professor/Reader in Agri., Zoology and Entomology.	1	-do-
3.	Associate Professor/Reader in Agriculture Extension	1	-do-
4.	Associate Professor/Reader in Horticulture	1	-do-
5.	Associate Professor/Reader in Agriculture Economics.	1	-do-
6.	Associate Professor/Reader in Animal Husbandry.	1	-do-
7.	Assistant Professor/Lecturer in Plant Pathology	1	Rs. 700-40-1100-50-1600/-
8.	Assistant Professor/Lecturer in Horticulture	1	-do-
9.	Assistant Professor/Lecturer in Agriculture Extension	1	-do-
10.	Assistant Professor/Lecturer in Agriculture Economics	1	-do-
11.	Assistant Professor/Lecturer in Animal Husbandry.	1	-do-
12.	Assistant Professor/Lecturer in Agronomy	1	-do-
13.	Lecturer in Sociology	1	-do-
14.	Medical Officer	1	Rs. 700-40-900-EB-40-1100-50-1300/-

Essential Qualification

Sl. 1 to 6

(a) Good academic record with a doctoral degree or equivalent published work.

(b) Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

(c) Ability to interact with other disciplines.

(d) About five year's experience of teaching and/or research provided that at least three of these years were as Lecturer, or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

Sl. 7 to 13

(a) A doctoral's degree or research work of a high standard;

(b) Consistently good academic record with 1st or high 2nd Class ('B' in the seven point scale) Master's degree in a relevant subject or equivalent degree of a foreign University. Having regard to the need for developing inter-disciplinary programmes, the degree in (a) above may be in relevant subjects.

Desirable

Sl. No. 1 : Experience in Agril. Metereology/Climatology.

Sl. No. 2 : Experience in posts of Field/Horticulture crops.

Sl. No. 3 : Experience in vegetable/Plantation/Fruit crops.

Sl. No. 4 : Experience of working in rural areas.

Sl. No. 5 : Knowledge in rural banking.

Sl. No. 6 : Experience in animal nutrition/animal breeding/live-stock Production and management.

Sl. No. 13 : Experience in Rural Sociology.

Sl. No. 14

Essential qualification

A good M.B.B.S. Degree of Recognised University and 3 years experience of providing General Medical, Care Service.

Desirable

Candidate having post graduate qualification in any branch of Medicine will be preferred.

Candidates appointed should be prepared to serve anywhere within the jurisdiction of the North-Eastern Hill University, although presently they will be posted at Medziphema, District Kohima, Nagaland.

Applications on plain paper indicating name, present address, Home address, Age, qualifications in detail, etc. etc., should reach the undersigned on or before **9th May, 1981** together with an Indian Postal Order for Rs. 5/- (Rs. 2.50 in case of Schedule Caste/Schedule Tribe candidates) payable to the "North-Eastern Hill University, Shillong as application fee.

1. Persons in service should submit their application through their employers.

2. Candidates called for interview will have to appear before the Selection Committee at the office of the North-Eastern Hill University or at any place specified. A return second class railway fare will be paid by the University.

3. All appointments will be subject to a period of probation.

4. These posts are open to all citizens of India who satisfy the required qualifications but some preference may be given to equally qualified Scheduled Caste/Scheduled Tribe candidates.

5. The University reserves the right to make appointment under statute 21 of the Act., if necessary.

M.R. Mawlong
REGISTRAR

ALIGARH MUSLIM UNIVERSITY
ALIGARH

Advertisement No. 2/81-82

Applications on the prescribed form are invited for the following posts :

1. **Professor of Chemistry (Inorganic Chemistry) (Temporary) Scale Rs.** 1500-60-1800-100-2000-125/2-2500 **plus allowances**

Qualifications

(a) A first or a high second class Master's Degree in the subject concerned of an Indian University or equivalent degree of a foreign University, (b) a research degree of a doctorate standard or published work of a high standard and (c) at least 10 years experience of teaching post-graduate classes and guiding research.

2. **Professor of Electrical Engineering (Plan Post), Scale Rs.** 1500-60-1800-100-2000-125/2-2500 **plus allowances.**

Qualifications

An eminent scholar with published work of high quality actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at Doctoral Level.

OR

An outstanding Engineer/Technologist with established reputation who has made significant contribution to knowledge.

Desirable

Specialisation in Communication Engineering.

Prescribed application form and instructions may be had from the Dy. Registrar (Executive) either personally or by sending a self-addressed envelope of 23 x 10 cm. Last date for recepit of applications is **1st May 1981**. Incomplete applications and those received late may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single Second Class Railway fare only.

Mahmood Ali
REGISTRAR

HIMACHAL PRADESH UNIVERSITY

RECRUITMENT BRANCH

Advertisement No. 3/81

Applications on a plain paper, (duly typed in the proforma given below) under registered cover, alongwith a crossed Indian Postal Order of Rs 10/- (Rs. 5/- for S.C./S.T.) payable to the Finance Officer, H.P. University, Simla-171005 are invited for the following posts so as to reach the undersigned on or before **1st May, 1981.**

1. **CO-ORDINATOR**—One

(Term post and will be abolished as soon as the U.G.C.'s project is completed).

Essential Qualifications

Ph.D. or M.Phil degree in any subject with experience of working in Adult Education Programme.

Desirable

Experience in N.S.S., N.C.C., Sports Cultural and other Youth Welfare Activities.

Preference

Preference will be given to the candidates who have adequate administrative experience also.

Note: The Co-ordinator will be required to look after the work pertaining to Co-ordinator N.S.S. also.

Pay Scale

Rs. 1100-1600.

2. **PROJECT OFFICER**—One

(Term post and will be abolished as soon as the U.G.C.'s project is completed).

Essential Qualifications

M.A. in any subject with 5 years' experience in the field of Social Education/Employment Bureau.

Desirable

Acquaintance with problems of tribal area and experience of working in Adult Education Programmes.

Pay Scale

Rs. 700-1300.

Candidates already in service should send their applications through proper channel. An advance copy may, however, be sent direct.

Candidates called for interview will have to come to the place of the interview at their own expenses and bring with them their original research papers, degrees and certificates etc. for verification.

The University reserves the right to negotiate with suitable person or persons, if necessary, who may not have applied formally.

The University also reserves the right to fill up or not to fill up the posts or to call only selected candidates for interview.

Candidates are required to give the following particulars:

1. Name of the Post
2. Name of the Applicant (IN BLOCK LETTERS)
3. Date of birth
4. Address for correspondence
5. Province of domicile
6. Academic qualifications: giving division and percentage of marks in each examination from high school onwards: (Attach attested copies of all the certificates/degrees).
7. Administrative experience with detail of: post held, name of institution/employer, period with date and last pay drawn.
8. Minimum salary acceptable
9. I.P.O.'s No. :——————— dated————.
   (MONEY ORDERS AND CHEQUES ARE NOT ACCEPTABLE)
10. Any other information worth mentioning, not covered above.
11. Signature of the candidate with date.

Note

(i) Applications not in conformity with the above requirements and applications received after the due date will not be entertained, and no correspondence will be entertained in this regard.

(ii) Persons who have already applied for the above mentioned post in response to our earlier advertisement No. 4/79 dated **16-2-1979** need not to apply again. However, they may send additional informations, if any.

A.R. Chauhan
REGISTRAR

Indian School of Mines

DHANBAD-826004

No. 615120/1/81 Dated : 10.3.1981.

ADMISSION TO ADVANCED DIPLOMA IN MINE SURVEYING 1981-82

Applications are invited from candidates possessing the requisite qualifications for admission to ONE-YEAR Advanced Diploma course in Mine Surveying being offered by the Indian School of Mines, which is a deemed to be University under the University Grants Commission Act.

2. **ELIGIBILITY REQUIREMENTS**

(A) (i) Diploma in Mining/Surveying/Civil Engg (or equivalent) with one-year experience in underground Coal/Metal Mine Surveying.

(ii) The candidate should have obtained at least 60% marks in the qualifying examination, relaxable to 50% for sponsored candidates.

OR

(B) In case of sponsored candidates only, Higher Secondary (with Physics, Chemistry and Mathematics), with Mine Surveyors Certificate of Competency (granted under the Mines Act) and one-year experience as surveyor after obtaining the said certificate (persons who have completed the relevant Make-up Semester at Indian School of Mines would also be eligible for admission).

3. Preference will be given to sponsored candidates and, amongst them, to persons holding a diploma as at 2(A) above. Sponsorship in this context means retention of lien on post and grant of suitable allowance. Application of sponsored candidates should carry suitable endorsement by the employer to this effect.

4. **PROCEDURE FOR APPLYING**

Application forms along with the relevant information bulletin can be obtained by sending a Bank Draft or crossed Postal Order, where banking facilities are not available for Rs. 5/- (Rupees Five only) made payable to the Registrar, Indian School of Mines, Dhanbad-826004.

LAST DATE FOR RECEIPT OF COMPLETED APPLICATIONS: MAY 11, 1981.

S.P. Varma
REGISTRAR

IPB/4946

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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH MAY 1, 1981

Prof. Nurul Hasan, Vice-President, Council of Scientific and Industrial Research, speaking at a seminar held recently at Avadh University.

ASSOCIATION OF INDIAN UNIVERSITIES PUBLICATION

CLASSIFIED ADVERTISEMENTS

BANGALORE UNIVERSITY

JNANA BHARATHI, BANGALORE-560 056

No. Est. SCL Advt. 30/81 **Dated : April 10, 1981**

NOTIFICATION

Applications in the prescribed forms are invited from the qualified candidates for appointment to the following posts in the Bangalore University.

Name of the Department	No. of Posts
Post Graduation Course in Sericulture	
1. Reader in Moriculture (Physiology/Plant Pathology)	2
2. Reader in Sericulture (Physiology/Genetics)	2
3. Lecturer in Moriculture (Plant Pathology/Physiology)	2
4. Lecturer in Sericulture	3
5. Lecturer in Statistics	1
6. Lecturer in Economics	1
7. Lecturer in Silk Technology	1
8. Field Supervisor	1

Scale of Pay

Readers—Rs. 1200-50-1300-60-1900.
Lecturers—Rs. 700-40-1100-50-1600.
Field Supervisor—Rs. 660-1750.

1. **Qualifications for the Posts of Readers in Moriculture**

I or II Class Master Degree in Botany with Doctorate degree in Physiology/Plant Pathology. Teaching experience atleast five years at P.G. class.

2. **Qualifications for the Posts of Readers in Sericulture**

I or II Class Master Degree in Zoology with Doctorate degree in Physiology/Genetics. Teaching experience atleast five years at the P.G. Class

3. **Qualifications for the Posts of Lecturers in Moriculture**

M.Sc. I or II Class in Botany with Doctorate degree and research experience in Mulberry.

4. **Qualifications for the Posts of Lecturer in Sericulture**

M.Sc. I or II Class in Zoology with Doctorate degree and Research experience in Sericulture.

5. **Qualifications for the Post of Lecturer in Statistics**

I or II Class Master degree in Statistics with Doctorate degree and Research experience.

6. **Qualifications for the Post of Lecturer in Economics**

I or II Class Master degree in Economics with Doctorate degree and Research experience.

7. **Qualifications for the Post of Lecturer in Silk Technology**

Bachelor of Textiles with two to three years of research experience in the subject. Teaching experience at the P.G. level with knowledge of Sericulture.

8. **Qualification for the Post of Field Supervisor**

I or II Class Master degree in Botany or Zoology with experience in Mulberry cultivation.

KNOWLEDGE OF KANNADA IS A DESIRABLE QUALIFICATION FOR ALL THE POSTS.

GENERAL

The prescribed application forms in seven sets can be had from the Registrar, Bangalore University, Jnana Bharathi, Bangalore-56, on payment of Rs. 25/- (Rupees twenty five only) for the posts of Readers, Rs. 20/- (Rupees twenty only) for the posts of Lecturers and Rs 10/- (Rupees Ten only) for one post of Field Supervisor. The amount may be paid in the office of Finance Officer, Bangalore University, Bangalore-56 or through crossed Postal Order/s payable to the Registrar, Bangalore University, Bangalore. No other form of remittance towards application fee will be accepted. Application forms must be accompanied with a self addressed envelope of size 6″ x 12″ duly stamped with Rs. 2.85 worth of postal stamps. Requisitions received without self addressed envelope and required postal stamps will be rejected.

Seven copies of applications giving all required particulars along with the attested certificates in respect of qualifications, date of birth, teaching and professional research experience and atleast two testimonials, one of which should be from the Head of the Institution, if any, where the applicant is now serving or served last, should be attached to applications and sent to the Registrar, Bangalore University, Jnana Bharathi, Bangalore-56 on or before **25th May, 1981**.

Copies of publications, if any, in 7 sets may be enclosed to the application forms. Applications received without true copies of marks cards, degree certificates and other certificates will not be considered.

Candidates who have appeared for examination and awaiting result as on the last date of receipt of applications in the University needs not apply.

Those who are in employment should send their applications through their present employer so as to reach this office on or before the last date fixed. Applications received after the due date are subject to acceptance or rejection at the discretion of the University.

Canvassing directly or indirectly would disqualify the candidate.

Incomplete applications are liable to be rejected.

The number of posts specified above is subject to variation depending upon the needs of the University.

It is open to the University to fill or not to fill any of the posts now advertised.

Application fees once remitted is not refundable under any circumstances. Separate applications along with enclosures are required to be submitted for each post. One application cannot be considered for more than a post.

No TA/DA will be admissible either for attending the interview or for joining the post, if selected.

NOTE

The appointments are tenable only upto 31.3.1985 unless the Project is continued by the Government or coterminus with the project period whichever is earlier.

REGISTRAR

UTKAL UNIVERSITY

Notification

No. Estt-I/886-C/940/81

Dated 10.4.81

The last date of receipt o applications for the following posts of Lecturers in various P.G. Departments of the University advertised earlier vide this office notification No. Estt-I/886-C/33083/80 dated **31.12.80** and No. Estt-I/886-C/6401/81 dated **5.3.81** is extended till the **11th May, 1981**.

1. **Lecturer in Economics**
   – One post (Leave Vacancy)
2. **Lecturer in Mathematics**
   – One post (Leave Vacancy)
3. **Lecturer in Statistics**
   —One post (Leave Vacancy)
4. **Lecturer in Physics**
   —Three posts (Leave Vacancy)
5. **Lecturer in Zoology**
   —One post (Leave Vacancy)
6. **Lecturer in Anthropology**
   —One post (Adhoc)
7. **Lecturer in Geography**
   —One post (Leave Vacancy)
8. **Lecturer in Political Science**
   —One post (Leave Vacancy)
9. **Lecturer in English**
   —One post (Leave Vacancy)
10. **Lecturer in Botany**
    —Two posts (Temporary) for one academic session but likely to continue.

S.K. Ray,
REGISTRAR

UNIVERSITY NEWS

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Editor : ANJNI KUMAR

Financing of the New Universities

P. Sivalingam*

The present university system in India had an early start in the year, 1857. The first three Universities at Bombay, Calcutta and Madras were established on the model of London University. Nearly a quarter of a century later the Punjab University at Lahore was established, closely followed by the Allahabad University (1887). At the turn of the nineteenth century there were only five Universities in India. By 1950, the number of Universities rose to 21. In the next three decades the number has grown to 115, a phenomenal growth in a country of exponential population increase.

These various universities have a hetrogeneous pattern. A bulk of these have been set-up by the acts of state legislatures. In addition there are seven central universities, nine deemed universities and ten institutes of national importance. The universities range from 'purely affiliating', 'affiliating-cum-teaching', 'unitary-teaching' or 'federal' in character with constituent colleges and departments.

The enrolment has increased from 200,000 in 1945 to 3 million in 1973-74 and is expected to touch 5 million in the 1980. But in terms of University enrolment for 100,000 population India exceeds only a few developing countries such as Buma, Sri Lanka and Indonesia and is even behind Pakistan, U.S.A., U.S.S.R., Canada and France.

The affiliated colleges are another phenomenon peculiar to India. Beginning with an inconsequential 27 in 1857, their number now exceeds 4000.

In terms of research students, only 3 out of 1000 university students were enrolled in research in 1947, and the present number is 6 per thousand.

Regarding statewise distribution, Uttar Pradesh leads with 17 Universities and Higher Institutes, Tamilnadu has 7, with Himachal Pradesh having one.

Uttar Pradesh leads in student enrolment (8 lakhs), followed by Maharashtra (5.4 lakhs), West Bengal (3.3 lakhs) and Tamilnadu (2.3 lakhs).

There are 14 Universities with less than 1000 student enrolment and 6 universities with more than 1,00,000 enrolment. Nearly 24 universities have 40,000 to 1,00,000 enrolment.

J.L. Azad (1) in his book on Financing of Higher Education in India summarises this growth as follows:

a) The institutional pattern that has emerged in India in the post-independence era is heterogeneous and diffused in complexion, size and quality.

**Vice-Chancellor, Perarignar Anna University of Technology, Madras.*

b) There is little evidence of the university institutions having responded to a disciplined growth, which a system of socio-economic planning is expected to generate.

c) The absence of a coordinated policy of ensuring a systematic development of higher education is evident from the large variations in the average population served by the universities in different states.

d) The unplanned expansion in university enrolment has almost barred any improvement in the quality of education as is evidenced by the alarming rate of wastage and other indicators.

Overall expenditure on higher education

Indian expenditure on education was less than 4% of its National Income in the year 1969, while U.S.A., Denmark, U.S S.R. and Canada spent more than 6% with Canada leading at 8.3%. At constant prices, the Indian Education Expenditure was 1.3% (1950) to 3.2% (1970). Of this 15% to 30% was on higher education.

The *per capita* expenditure on *education* varied from Rs 3.55 to Rs 10.87 over the two decades (1950-70) and the *per student* expenditure varied from Rs. 50 to Rs. 72 per year. The expenditure per student on *higher education* varied from Rs. 560 (1950) to Rs. 700 (1970) at constant prices. This means that higher education was a far greater manifestation of the inflationary pressures, than overall education. The per capita expenditure on education during 1969 was $300 in Poland and $2.5 in India. The developing countries are spending less than $10 per capita, while the developed countries spend $100 and above.

Per capita expenditure on Education by the various States in India has been studied by J.L. Azad (1975). For example the State of Tamilnadu ranks 3rd, in terms of percentage of Net Domestic Product ranks 5th in Per Capita Direct Expenditure, ranks 12th on Percentage of Expenditure on Higher Education etc.

A break-up of University Expenditure on Consumptive and Investment basis over 20 years period (1947-67) indicates that consumptive expenditure is increasing over the investment expenditure. During 1966-67, the consumptive expenditure was 103 crores and development expenditure was 74 crores.

Sources of financing higher education

The sources of financial support for the Universities and their colleges are (1) the Central Government (2) the State Governments, which are primarily responsible for all education including the universities, (3) Admission, Examination, and miscellaneous fee collections, (4) Endowments and Private benefactors, and (5) other miscellaneous sources.

During 1966-67, 22%, 40%, 30%, 0.8% and 6.8% respectively of these categories accounted for the income of Universities.

An analysis reveals the absence of clear cut demarcation between assistance from State and Central Governments, the increasing government expenditure on University and Professional education and a reduction in the collection of fees. There has been a consistent decline in the contribution from private and other resources.

Machinery of financial administration

There is a multiplicity of organisation concerned with the provisions of financial assistance to institutions of higher-learning. At the State level there are Directorates of Collegiate, Technical and Medical Education, Agricultural Department also controls its own educational programmes. Some Agriculture Universities have annual outlays exceeding Rs 10 crores.

At the Central level also, a number of bodies/ government departments are concerned with giving financial assistance for higher education. Amongst the specialised bodies, mention should be made of the University Grants Commission, All India Council of Technical Education, the Indian Council of Agricultural Research, the Indian Council of Medical Research etc. Recently the Indian Council of Social Science Research and the Indian Council of Historical Research have been added to the list.

The situation for financial administration of higher education does not appear to be conducive to coordinated development. "An essential prerequisite for the university institutions to provide the best available academic facilities and to meet the man-power needs of the country in respect of highly trained personnel without any waste of resources is that they should be enabled to develop in a coordinated manner. At a time when throughout the world, emphasis is being laid on the interdisciplinary approach in higher education, no subject of study can flourish in a state of academic exclusiveness. Hence the need for an organisation, which can ensure integrated development of the various university disciplines. This work can be most appropriately undertaken by an organisation like the University Grants Commission. This would however, necessitate enlarging the scope of U.G.C., and streamlining its functioning. It would also be necessary to create suitable organisations in the States as counterparts of the Central U.G.C. Except for Madhya Pradesh which has set up a University Grants Commission, more or less on the pattern of the Central U.G.C., no other State has such an organisation imposed between the Government and the institutions" (Azad, 1975).

Role and objectives of universities

When State Governments take a decision to open an university they are making a long term investment decision similar to what they would be doing in building a super thermal plant, so that in the future the students in them are prepared and trained to serve the State and the community needs in various capacities. In making such decisions the Governments seek guidelines on (a) how much should go into financing of higher education, and (b) how a given amount should be distributed between various types of demands of university expenditure. There are resource allocation decisions of major importance, which are best guided by experts on economics. In this context, two conflicting demands will be important.

The grant objective of all universities is to produce capital in terms of creation, innovation, stimulation, preservation and dissemination of ideas, which are both the end purpose of higher education and the basic ingredient for the growth of the State and the Nation. This is the fundamental reason why higher education must be financed by Public funds.

The second reason for financing higher education is the market forces, mainly financed through fees, wherein the laws and market supply and demand will provide an education which is saleable.

Both of these requirements will have to be considered at this stage of development of our Nation. The grand objective of providing higher education and the market forces are not in themselves contradictory. However, the objectives, aims and goals of Universities may have to be redefined periodically, say once in five years, in a hierarchy of primary, secondary and tertiary and quartinary objectives in that order taking into consideration the changing needs of socio-economic factors and technology development and transfer.

The second objective is to make a clear distinction between variables, which the university cannot control (future enrolments) and those which it can control and determine (quality of teaching and research). For example the total investment made by the State in higher education is outside the purview of a particular university but the allocation between capital and consumption expenditure is in its own purview.

The third objective is to delineate as clearly as possible the relationship between changes in variables and the consequent adjustment in the objectives of the University. After all, University is a dynamic system and a constant study of the effect of changes in several varieties on the quality of education, training and research, development and extension is necessary for proper feedback and control. In this context the mixed free-subsidy system of financing higher education we have adopted must be constantly reviewed. Otherwise we may oscillate between pure subsidy system (Government Institutions) and increased fee basis (private schools and colleges).

The fourth objectives is to relate at least empirically the cost of higher education and its benefits. The earlier part of this paper is such an attempt. Certain indicators must be found to undertake cost-benefit analysis and to provide the current basis for making allocations.

Future financing of existing universities

Financing higher education has undergone significant changes both in magnitude and pattern with the coming into existence of University Grants Commission. Depending on the size of block grants and development grants given by State and Central Governments to match the University Grants Commission grants, various Universities seem to differ in strength and stability. A detailed study of this pattern by a review committee is to be taken up immediately. The growth of revenues, predominance of certain sources like grants, the role of fees and their changing importance, fluctuation in revenue and expenditure and their impact on study facilities in relation to the growth of enrolment, equity in the provision of study facilities among different disciplines and amongst different universities in a given State throw up a number of issues for critical evaluation (D.M. Nanjundappa, 1976).

An indepth study of the finances of Karnatak University since its inception in 1949 by Nanjundappa and the Report of the Review Commission of the Karnataka Universities (1980) are excellent precedents for other Universities to follow. The study by Nanjundappa offers suggestions regarding the criteria for fixation of grants and restoring stability to University finances, pleads for a change in the pattern of University Grants Commission's assistance, suggests a new format for the presentation of the Budget, emphasizes the need to allocate more funds for academic services of the University, suggests guidelines for optimal interfunctional allocation of funds, advocates the setting up of a Planning Committee for Universities at the State Government level and a Planning Advisory Board and a Planning Cell at the University level, pleads for a closer alignment between costs and fees argues out the case of making the beneficiaries pay the full cost, suggests giving restricted powers to borrow with Government approval for specific purposes which admit of pricing and pleads for an indirect system of loans to all eligible students with the condition of repayment from their future earnings in place of the existing grant system. It also recommends training of University Administration in the management of university finances.

After three decades of independence the country itself is in a state of flux and the educational system reflects this trend. Decisions and reviews which have been postponed or totally forgotten have a way of inflicting penalties in any system and this is particularly so in a highly dispersed system such as the educational system. The responsibility for this state of flux is also to be shared by the educationalists themselves, in addition to the administrators and the politicians. When a system is not under the control of the 'powers' that are assigned the responsibility, then all and sundry assume the powers and the system becomes unstable. Stability, sensitivity and compatibility are all important and it cannot be said that the one hundred and odd universities are all performing in an optimal manner.

Future financing of existing Universities shall be based on the following guidelines.

(a) An indepth study shall be made for each University, for Universities in each State and for the country as a whole.

(b) Planning and monitoring cells shall be instituted in each University, and in each State and they shall all be coordinated by the University Grants Commission at the Centre.

(c) The deemed universities, the central universities, and institutes of national importance shall all be brought under one centralised control.

(d) It has already been stated that there are 14 universities with less than 1000 students enrolment and 30 universities with more than 20,000 enrolment. Both of these are not tenable by standard.

(e) A lower limit of 6000 for residential universities and an upper limit of 20,000 for affiliating universities seems to be reasonable and optimal.

(f) Aggregation of certain Universities and establishment of new universities seems to be necessary.

(g) Every major city can have one university provided there are enough colleges to be combined to form an University.

(h) Future financing of existing universities shall be based on the above reorganisation and review.

(i) Consequent on the introduction of 10+2 pattern and the vocationalization at secondary education level, the burden of existing universities has already decreased since a major burden of the P.U.C. programmes has been shifted to the schools, and junior colleges outside the University System. This is an ideal time for reorganization of both the administrative set-up and the financial management.

(j) If a review indicates major imbalances in any university, they shall be corrected immediately, by providing additional staff, buildings, equipment and Library facilities on a priority basis.

(k) Above all we should aim at running the existing universities at 80% to 90% efficiency. It is only in such efficient environment, future citizens of India can be trained in efficient and effective manner. In short the future performance of the country depends on the efficiency attained in the Universities here and now.

Financing the new universities

Every new University is set-up after careful deliberations by the State Legislature with Central Government and the University Grants Commission. It is not very difficult to ensure the development and growth of new Universities from the very first day of inception. However this is not the case.

The first Vice-Chancellor is unable to initiate actions for want of seed-money, and this in turn generates a loss of credibility from students, staff and the public which expect a lot from a new set-up. Very soon the new University is allowed to languish and wither away. Is this wastage inevitable? The following steps are essential for the proper initiation and functioning of new universities.

(a) Along with the appointment of the Vice-Chancellor for the first three years, a special officer and a small team of his own assistants shall be appointed by the State Government to assess the assistance required from the State Government to nurture this new organisation. The University Grants Commission shall also appoint an Advisor and a Special team of assistants to assess the assistance needed from the University Grants Commission for nurturing the new institution. These two teams shall assist and advise the new Vice-Chancellor and his own team in developing the new University.

(b) A seed-money of two crores shall be given by the Central Government and one crore by the State Government for every new University to ensure that the University is set-up in modern lines for efficient administration. Seventy five percent of this money shall be spent on University Buildings, Library, Computer Centre, Guest House, University Press and Curriculum Development Cell and other central facilities which are all necessary for any new University. The remaining 25% shall be spent on furniture, transport, stationery and University administrative staff. These expenditures shall be strictly controlled and monitored by teams working under the general guidance and control with the Vice-Chancellor.

(c) In addition to this the State Government shall ensure that adequate annual grants shall be provided for salary of staff attached to the various teaching faculties, consumables and normal purchase and maintenance of equipments and class room facilities.

(d) Every university requires certain critical funding for growth and development into centres of excellence. The quantum of this assistance shall be decided upon by a committee of experts who will examine the potential for development, chart out directions of development, identify areas of funding and allocate funds on project-wise basis, the projects having been initiated by the various Deans and Heads of Departments, thus ensuring balanced growth from all departments.

For example, the Deans and Heads of Departments of the Perarignar Anna University of Technology generated nearly 250 project proposals for growth and development of their departments, at an estimated cost of 30 crores. Based on the University Grants Commission norms these various projects were assigned priorities upto four levels by a team of experts appointed by the Vice-Chancellor. The first priority expenditure for the first five year period (1979-84) come out 12 crores. In addition to these University Administrative Facilities, Central Facilities and Establishment of Ten Centres of Excellence came out to 6 crores. This budget has been submitted to the University Grants Commission but very little of this proposed expenditure has come from the University Grants Commission and perhaps none will come in the near future. In mean time the new University (like a new child without nourishment) has to grow with sustenance money provided by the State Government for routine expenditure. When expenditure is to be regulated in counting every paise, there is no need for high-thinking. All growths and developments require inputs in terms of men, machinery money, materials and management and there is no known system which can grow with zero inputs at all these levels. Another child born in equalor and poverty, growing without nourishment when nourishment is most needed, attached by sundry diseases due to lack of in-built strength, and yet continuing to live without a soul, a burden on the society which creates it. Is this the fate of our new universities? How can these new universities generate future citizens of excellence, when they themselves are floundering for existence. □

Reforms in Accounting in Universities and Colleges in India

C. B. Padmanabhan*

The present system of accounting followed by educational institutions is based mainly on the requirements of external users like audit and financial comptrollers. With increasing emphasis on effectiveness of educational expenditures and public accountability there is need for a change in procedures of accounting which will highlight management considerations like monitoring and evaluation of performance. The object of this paper is to indicate the lines on which such accounting reforms have to be brought about. The accounting system should throw light on and emphasise the purposes served by different educational activities.

The existing system of accounting is mainly geared to meet the requirement of external users. This kind of financial accounting is in usage for some time now. Transactions are recorded in the prescribed heads of accounts as laid down by the University Grants Commission and according to rules and procedures. Financial propriety is the major concern and there is always a pre-occupation with the necessity to avoid adult objections.

Such a system of financial accounting has well known characteristics. Under this system the nature of information is periodic and ex-post. It has also to be accurate. The main focus of attention in financial administration under financial accounting is to procure cash and disburse cash. Every effort will be made to balance the income and outgoings. Under this system the aim is to have sound finance and where the cash has come from and where it has gone will be a matter of great concern.

The above system of financial accounting which is mainly meeting the needs of external users has to be replaced ultimately by a system of managerial accounting, even though in the transitional stage both kinds of accounting will have to co-exist.

What is accounting?

Accounting is nothing but gathering, classifying recording, reporting and interpreting data relating to financial transactions. Hence accounting in the universities is classifying, recording, reporting and interpreting data relating to financial transactions of universities as well as the various departments in them.

In managerial accounting, the accounting system will be designed to meet the needs of internal users in regard to internal management at different levels and departments in order to ensure accountability and watching of progress both in terms of effectiveness and unit cost of the different programmes.

Such information will be of use mainly to decision makers within the university and not merely for financial control from outside. It will be timely and futuristic though it need not be quite precise. It can be approximate. Under this system there will be greater concern with planning the managerial sense, namely, setting up of goals, formulation of policies and evaluating programmes and procedures needed for achieving the ultimate objectives.

The methodology under management accounting will also be more and more oriented towards decision making within and not merely control from outside. For the purpose of planning, decision making and forecasting future resources, financial implications of decisions will be important and for this purpose cost per unit will be utilised. Budgetary control will not be the responsibility of the finance wing alone but it will be shared by all the entities in the universities and there will be a certain amount of self-control. For example, in certain universities in U.K. there are academic committees which go into the consumption of essential but large sized services like electricity, oil or fuel and such committees themselves monitor the use of these resources and impose self-discipline. Under this approach there has to be specialisation of functions, as for example, in correspondence courses of universities where activities of a large magnitude are needed which are of a commercial nature and so also botany department in agriculture universities in India. There is great scope for commercial activities in such large institutions and there has to be integration between accounting and audit. Thus managerial accounting is more an approach rather than a precise way of accounting transactions.

Activity based accounting

One such system of accounting based on managerial approach has been recently advocated in certain quarters and it is called an activity based accounting system. Under the activity based accounting, efforts will be made by every department of college to do accounting on the basis of the objects of direct expenditure arising from different activities. We can visualise that each department of a university or college has got a number of primary activities and secondary activities. The amounts of direct expenditure arising from primary activities would be allocated to those activities with further analysis of expenditures between sub-activities. Thus under primary activities we can identify:

(A) Under-graduate teaching which can be divided into the following sub-activities ;
   (i) lecture course;
   (ii) tutorials; and
   (iii) practical classes.

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(B) Post-graduate teaching which is also to be divided into the following sub-activities:
   - (i) lecture course;
   - (ii) tutorials; and
   - (iii) practical classes.

(C) Research which has the following sub-activities:
   - (i) Action research;
   - (ii) Mission-oriented research; and
   - (iii) Curiosity-oriented research.

(D) Public services or extension in which National Service Scheme programmes, adult education activities and other programmes will be sub-activities.

Evidently under public service there cannot be a division on the basis of lecture courses, tutorials, etc. Instead there has to be visits, advice by a certain department of the faculty or adoption of a certain type of developmental programme by a set of people.

The cost in respect of each of the activities and sub-activities will have to be under the respective headings. In the same way the secondary activities which arise from these primary activities will be costed.

If we look at the structure of the expenditure in a university or a college at present we have both the recurrent and non-recurrent or capital items of expenditures. Under recurrent expenditure we have the following:

(a) salaries and allowances of teaching and academic staff;
(b) salaries and allowances of non-teaching staff;
(c) maintenance of building;
(d) maintenance of equipment and furniture;
(e) consumable chemicals and stores;
(f) laboratories;
(g) stipends and scholarships and other concessions;
(h) games and sports;
(i) hostel; and
(j) other items.

All these together constitute total recurrent expenditure.

Under non-recurrent expenditure the following are the items of expenditures :

(a) libraries;
(b) buildings;
(c) equipments;
(d) furnitures; and
(e) other items.

The total of these five items will be the non-recurrent.

Under activity based accounting efforts will have to be made by individual department to allocate the expenditure over the different activities that have already been mentioned above. For example, teacher salaries will have to be allocated between under-graduate and post-graduate work and further among different sub-activities like lectures, tutorials, etc. This will be difficult in the early stage of introducing the activity based accounting because it is not very clear as to how much of the recurring expenditure on a professor of, say physics, can be allocated to work in the physics department teaching mainly physics for physics majors and physics for other departments who do not have physics as major. For this purpose it will be necessary to think accurately of the time devoted by a member of the faculty, say, of physics department to each of the departments with which he has to work. The secondary activities are in slightly different situation because they are more discreet and, therefore, allocation of expenditure among them can be achieved with some accuracy.

The advantage of this kind of accounting structure is that it would cut across the existing classes or departmental boundaries. To that extent departmental control of activities would be replaced by another kind of control, for example, science undergraduate teaching will be controlled by Dean of Science undergraduate teaching. In the early stage when we try to introduce this new kind of budget the problem of allocating resources between teaching, research and other activities will be a serious one. For this purpose we have to know how a professor allocates his time between teaching, research, extra-curricular activities, administration, background reading, etc. Further we also will have to know how he is distributing his time among the various activities, sub-activities and secondary activities in the university. This will not be possible unless an enquiry into the use of academic time is initially undertaken. If this kind of accounting is adopted in universities and colleges there is likely to be a greater concern with the use of resources and the achievement of the objectives for which the expenditures are being incurred.

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Correspondence Education

Manmohan Mehra

In view of our national policy on education to slow down the process of expansion of university education: the relevance of expanding correspondence education has assumed considerable importance, more so when it has been decided that nearly 20 per cent of the total enrolment will be catered through correspondence education. The correspondence courses were started for the first time in 1962 at the University of Delhi, and at present there are twentytwo Institutes offering correspondence education in our country. The main purpose of the correspondence education is to provide an alternative method of higher education to a large number of people with the necessary aptitude for acquiring further knowledge and for improving their functional competence. A higher degree does provide a comparative advantage to a candidate to compete for a job which prescribes some minimum eligibility condition. In as much as many students aspiring for higher education are unable to get admission to a regular college or at a university department, correspondence institutes do provide an alternative. The weaker sections of the community cannot afford the expensive university education; for them correspondence education provides a means to improve their qualifications and thus compete with the better off sections of our society.

The correspondence education is essentially based on the supply of the instructional material sent by post which is supported by the personal contact programmes executed at study centres, by the submission of the response sheets, their evaluation and return, and by the radio broadcasts. The preparation of the learning material is crucial to the success of the entire programme of correspondence education. The critics of the correspondence education hold that, by and large, the correspondence lessons are not qualitative. In view of this criticism, it would be desirable that the subject committee should comprise 2-3 teachers in the subject belonging to the correspondence institute plus 2-3 other eminent teachers in the subject. A course unit should be written by a team, and after it is finalised, it should be circulated to the faculty members for their comments. After the receipt of the comments, a meeting of the course unit be convened in which the final draft of the course unit be approved after embodying the suggestions and comments to the extent it is thought desirable.

The concept of study centres is still to germinate in our country. In an independent learning situation, the contacts between the teachers and students not only enhance the effectiveness of the learning material for the students, but are also essential for maintaining their motivation. At study centres, students get an opportunity of discussing their academic problems with their teachers. These study centres should be equipped with libraries. Very few universities running correspondence courses have libraries for their students except at the headquarters.

In every correspondence institute the submission of the response sheets should be made compulsory, and it would be desirable if these are made a part of the internal assessment.

Except for a few radio broadcasts, the other media of communication—television, tapes, films etc. which can supplement independent study, have not been exploited.

The "continuing" part of correspondence education has so far remained neglected. With a view to developing it, short-duration job-oriented diploma courses may be introduced.

Neither the universities offering the correspondence courses, nor the U.G.C. has acted as a coordinating agency to review the functioning of the correspondence education and to ensure the maintenance of standards.

Therefore, for fostering the development of correspondence courses and ensuring an effective and meaningful implementation of the correspondence education, a central machinery should be set up.

Jakhar addresses convocation at HAU

While addressing the 11th convocation at Haryana Agricultural University at Hissar, Mr Bal Ram Jakhar, Speaker, Lok Sabha, said, "The present system of fixing of prices of agricultural produce, is neither scientific nor realistic. The producer does not get remunerative prices and the consumer has to pay higher prices to have has necessities of daily life. It is only the middle man who is eating up into the vitals of the society and amassing disproportionate wealth". He urged the government to fix the margin of profit at every stage so that the producer, trader and the consumer are adequately compensated. He said that it was a tragedy that agriculture is the only sector where the producer helplessly watches fixation of the prices of his produce and himself has no say. A definite parity between the index of prices of industrial and agricultural products must be established. The prices of agricultural products should only be fixed in the light of the variations in prices index of industrial goods and agricultural inputs. He lauded the research achievements of HAU and said, "This University is the pride of the nation". He complemented the Vice-Chancellor, Dr. P.S. Lamba and the scientists for the tremendous progress, the University has made during a short period. He said that the progress made in the livestock feeding, breeding and management covering the clinical and para-clinical aspects and free dissemination of technology under 'Lab to Land Programme' is really commendable.

Mr. Jakhar advocated diversification in agriculture because he said that agriculture today cannot sustain the load and pressure of mounting population. Agro based industries with better marketing facilities must, therefore, be developed. He urged upon the agricultural economists to periodically, publish all statistics concerning the cost of production, so that everybody knows where he stands. Some strict measures have to be taken to check effectively the sale of spurious material pertaining to plant protection and control of insect, pests, weeds and fertilizers. If this was not done the farmers may lose faith in modern technology. Paying warm complements to the farmers of India, he said, "It is their hard labour and dedication which has made the nation self-sufficient in food grains". In spite of all these handicaps the sons of the soil never lose heart.

Sh. G.D. Tapase, Governor of Haryana and Chancellor of HAU conferred the degree of Doctor of Science (Honoris causa) on Mr. Bal Ram Jakhar for his outstanding contribution to the cause of agriculture in India and the upliftment of rural masses.

Dr. P.S. Lamba, Vice-Chancellor of the University, disclosed that as a result of the efforts of farm scientists wheat yield of the families adopted under the massive lab to land programme has increased by 50% and that of Bajra by 30%. He said that as many as 8 promising varieties of various crops namely sugarcane, moong, guar, fodder, cotton and oats have been recommended by HAU to the Central and State Variety Release Committee for their notification for general cultivation. He revealed that a total of 1344 quintals of good quality breeder seeds of cereals, pulses, oilseeds and forages has of the state alone but also of the National Seed Corporation and other agencies.

Mr. Bal Ram Jakhar receiving the Degree of Doctor of Science from the Vice-Chancellor Dr. P.S. Lamba at a convocation.

CAMPUS NEWS

All India Teachers Meet in Patna

Dr Jagannath Mishra, Chief Minister of Bihar, while inaugurating a three-day conference of All-India Federation of University and College Teachers Organisations said in Patna that there was an urgent need for making education an effective tool of socio-economic transformation in the country. The education system should be modernised to usher in a new socio-economic order and help recover from the past setbacks. He called upon the teachers to contribute their mite in the solution of the various problems facing the country today.

Mr Rudolf Tagtmeyer, Secretary of the World Federation of Teachers' Union was the chief guest and Mr Nasiruddin Haider Khan, Bihar Education Minister, presided over the function. About 300 university and college teacher delegates from all over the country participated in the conference.

Dr Mishra, who happens to be a teacher, pleaded for equal opportunities to all in the field of higher education. He favoured a thorough review of the achievement in the field of education and formation of a new policy to cover all sections of the society without discrimination. The Chief Minister regretted that still a large section of the society belonging to lower socio-economic stratum was deprival of higher education. The recent take-over of all secondary schools and conversion of affiliated colleges into constituent ones by the state government was in fact a step forward in achieving the cherished constitutional goal of universalising education. He said the teachers should not only agitate for fulfilment of their demands but also work for the development of the society. It was the duty of the society to honour teachers and take steps for their complete satisfaction but at the same time it was also the duty of teachers to pay dividends to the society. He said teachers were the most conscious part of the society and hence they must find ways and means for solution of the socio-economic problems. The society could not make any development unless it got the total support of teachers. He exhorted the teachers to carry out their social responsibilities with utmost devotion. He expressed the hope that the goal set in the sixth plan would go a long way in giving a facelift to the existing system of education and in changing the present social set-up.

Mr Nasiruddin Haider Khan, in his presidential address said teachers had the greatest responsibility in shaping the future of the nation. He felt the necessity of imparting knowledge of modern techniques to the students in view of the growing challenges from neighbouring countries. He said the government was always ready to concede the genuine demands of teachers.

Mr Rudolf Tagtmeyer, said that economy and education were interdependent. It is the responsibility of the state to establish higher education with an adequate capacity so as to admit network of institutions of all those seeking education and to guarantee such conditions which the scientific level of their students requires. The Universities and similar institutions should closely link scientific research work with their educational tasks so as to disseminate the latest findings in the respective subjects.

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The state should place the necessary means in the form of personnel, buildings, equipment and subsidies at the disposal of the establishments of higher education so that they can comply with their double function, namely, training and research. Inadequate state subsidies must on no conditions imply that the big corporations take by means of contracts possession of the potential of research of the establishments of higher education.

The establishments of higher education should be democratically administrated and governed in order to comply with the tasks transfered to them. Their democratic management is necessary so that the greatest possible initiatives can be developed in the respective fields of teaching and research

Chandigarh seminar on strategy for development in north-western India

The seminar on "Strategy for Rural Development in North-Western India" was organised by the I.C.S.S.R.. Regional Centre for N.W. India at Chandigarh on 3rd and 4th April, 1981. Prof. C.H. Hanumantha Rao, Member of the Economic Administrative Reforms Commission, inaugurated the seminar while Prof. T.N. Madan, Member-Secretary, I.C.S.S.R., presided over the inaugural session. Prof. R.C. Paul, Vice-Chancellor, Panjab University, in his welcome address, emphasized the importance of the theme of the seminar for a country like India where almost 80 per cent of the population lives in villages. About 60 scholars drawn from Universities in Punjab, Haryana, Himachal Pradesh, Jammu & Kashmir and Delhi participated in the discussions.

The discussions were arranged in four sessions, each representing a specific dimension of the theme. The first session dealt with the basic issues relating to the strategy for rural development with special reference to Punjab and Haryana. All the members brought out with equal emphasis the desirability of evolving a strategy of development which could reduce disparities in socio-economic progress between different parts of the region as well as different sections of the society. It was, however, pointed out that the thrust of the seminar on rural development did not mean to create any dichotomy between rural areas and the towns. Rather, they have to be functionally inter-related for the mutual benefit of the entire population of the region. It was clarified that in the present context rural development was not synonymous with agricultural development. In fact, there is a need to evolve a scheme of comprehensive development for the villages, leading to diversification of their economy and over-all social amelioration.

Discussions on the sub-theme: "Limits to Agricultural Growth", brought out very interesting things about the agriculture in Punjab and Haryana. (i) With about 80 per cent of the total area already under cultivation any further extension in net area sown in both the states is ruled out. (ii) Here, the intensity of cultivation has also reached an advanced stage. In Punjab, the development of irrigation seems to be approaching its limits. The agricultural yields have increased in the case of most crops. In future much of the effort will have to be made to maintain the yields even at the present level. (iii) Some changes in cropping pattern may add to productivity. The expansion of horticulture and vegetable farming should receive serious consideration. (iv) The main area of potentialities within the general sphere of agricultural diversification relates to live-stock. There is vast scope for bringing about a white revolution in both the states. But it has to be organised very comprehensively so that maximum benefits may accrue. Poultry and piggery should be developed and supplementary sources of income to the farmers. But in total terms, agricultural development seems to be reaching a plateau.

With high rate of population growth experienced in both the states in recent decades, increasing fragmentation of land-holdings and agricultural development slackening down, it is imperative for the two states to divert attention to rural industrialisation. All the scholars were unanimous on the desirability of initiating a massive effort toward an early industrial revolution in the region.

A considerable amount of discussion took place on the precise pattern of industrial development —ranging from concentration of industries in large cities to their dispersal to villages. In view of the diffused pattern of population distribution all over the region, 100% electrification of villages and towns and a dense network of roads and railways already available in Punjab and Haryana, the consensus emerged in favour of a dispersed pattern of industrialisation. For this dispersal, the areas along major highways and railway lines were favoured. Such a pattern would create "corridors of industrial development" along the major lines of transport. Since these highways and railway lines make a dense net-work spatially covering the entire region, the "corridor development pattern" would ultimately provide the desired dispersal of industry and allied activities, bringing the benefits of modern technology and industrial economy to the doorsteps of the villagers and urbanites. It was advocated that the capital produced by the agricultural surpluses should flow into these industries which may include agro-based industries, consumer goods, industries, engineering works, paper industry, textile industry, electronics, milk plants, etc. There is little scope for heavy industry in this region.

Such a pattern of industrialisation, if properly designed and executed, would spare the two states from problems connected with urbanisation—environmental pollution, shortage of housing, slums, etc. This type of an approach, would bring the maximum number of people within the orbit of integrated development and modernisation.

It was appreciated by all scholars that such a strategy of integrated rural development is possible in Punjab and Haryana in view of the infrastructural facilities already available in both the states. However, there was serious concern over the low operational efficiency of the Electricity Boards and the general shortage of power available in the region. It was argued that with frequent electricity break-downs and inadequate power in the two-states, not only industrial dispersal would be handicapped but it would not be possible to utilise fully even the existing capacity of the industrial plants. 'More power' and 'better management of the Boards' were pleaded for by all the speakers. It was further agreed that in terms of details the strategy of rural development evolved for this region should be such as fits well in the national context.

While doing every thing to improve the economic lot of the people through such a strategy of development, it was thought necessary to bring about simultaneous social progress in the region. The expansion of education (both general and technical) and health programme need to be accelerated and social tensions removed.

It was emphasised that economic development and social progress should go hand in hand. Both are to be essential parts of the strategy for rural development.

Punjab excavations bring out ancient pottery

Excavations undertaken by a Panjab University team at the ancient site of Singh-Bhagwantpur village in Rupnagar district, in February, have resulted in the discovery of painted greyware pottery which is believed to date to 700 BC. The excavations have been conducted under the supervision of Dr N.D. Sharma, visiting professor at the university department of ancient history, culture and archaeology.

Dr V.C. Pandey, Chairman of the ancient history department, said the material excavated was of considerable archaeological and historical value. It appeared that the high river bank at Singh-Bhagwantpur was inhabited, for the first time, about the year 700 B.C.by a people using painted greyware. While this pottery was still in use, another deluxe type, known as the northern black polished ware, came into use here. This was around the time of the Buddha and the entire period, from about 700 B.C. to 400 B.C., covered an early phase of the iron age in the Punjab. Although no house of the period lay within the limited excavation area, burnt bricks of a large size were found in the vicinity articles of copper, iron, bone and beads of semi-precious stone showed a developed stage of workmanship.

After a long gap, the site was occupied, for the second time, during the Kushana times from about 200 A.D. to 300 A.D. The greyware had gone out of fashion by this time. The red were is use in distinguished by stamped motifs. To this period belong two Indo-Greek coins, a Kushana coin, two baked clay seals, beautifully decorated terracotta stamps on plaques, animal figurines, beads and bangles and a tortoise-shaped pendant of white agate. Also interesting are the portions of a well-built of wedge-shaped bricks. Apparently, the inhabitants of Singh-Bhagwantpur, during the Kushana times, had to leave their homes abruptly, leaving their large storage jars behind, intact. The third and last re-occupation of the site took place about 100 A.D. and continues till this day. This period had yielded a large number of lumps of iron slag. It is clear that Singh-Bhagwantpur was smelting iron, and was perhaps providing it to the blacksmiths of Rupnagar, which enjoyed the status of a town from its beginnings during the Harappan times.

Bihar universities get Rs. 1.60 crores for staff

The Bihar Government has ordered the release of Rs. 1.60 crores to be paid as enhanced dearness allowance to the teachers, officials and non-teaching staff of the state's seven universities and the colleges under them. Another sum of Rs. 11.08 crores is being released as recurring grant for the Bihar, Magadh, Bhagalpur, Ranchi and L.N. Mithila universities for 1980-81 to enable them to tide over financial difficulties. The Government has also committed to give grants-in-aid for the non-plan recurring expenditure of six university offices post-graduate departments and colleges. So far 50 per cent of the grants have already been released. The Government has also cleared Rs. 32 lakhs for the construction of an examination hall in the premises of Bihar University at Muzaffarpur in the hope of removing the difficulties of university authorities in conducting examinations. Another sum of Rs. 1.38 crores is being released to enable the 138 colleges, made constituent in the third phase, to pay the increased allowances to principals and the enhanced pay and other allowances to the non-teaching staff and for their libraries and laboratories.

Common text-books for history

Union Education Minister S.B. Chavan expressed regret that many text-books used in schools and colleges were not up to the mark and some of them included material not conducive to promotion of national unity. He said to identify and remove such shortcomings a suitable mechanism to be operated through the State Government had to be evolved. The State Governments had already been contacted in this regard. But a clear-cut programme with emphasis on developing a national outlook should also be chalked out and included in the teachers' training programme. He said that the importance of modern technology in the field of education had also not been adequately appreciated. With the plans for utilising the Indian satellite for education and development, education could be brought within the reach of rural and backward people.

Among the various suggestions made was that the existing machinery for review of text-books should be strengthened, both at the Central and State levels, and the desirability of having common books in subjects like history should be examined.

Bihar Speaker for higher education in central list

Mr Radhanandan Jha, Speaker of Bihar Assembly, said that unless higher education was also included in the Central list, the cherished goal of national integration would not be achieved. He was inaugurating a seminar on "the role of higher education in promoting national integration", organised by the 11th Conference of University and College Teachers' Organisations in Patna, Mr Jha said people could be brought under one umbrella if higher education was added to the Central list. This would also help remove increasing trend of regionalism. He was critical of the working of the University Grants Commission (UGC). Higher education could not be developed all round the way the UGC had been functioning. He suggested that the growth of higher education should be given a new direction for which a complete overhauling of the present system was needed.

Mr Jha, however, regretted that allotment for the development of higher education has so far been inadequate. He also criticised the Planning Commission's attitude in the beginning which did not bother to include higher education in the planning. However, when it came under the purview of planning, it was decided to spend 10 per cent of the national budget and 6 per cent of the gross income of the nation. But it was never done. Fifty-six per cent of the education budget was spent on primary education in the First Plan and the Sixth Plan had a provision of only 13 per cent. Mr Jha called upon teachers to think over the problem and their role in national integration. He said national integration could be strengthened by having an uniform pattern of higher education.

Participating in the seminar, Mr Mrinmoy Bhattacharyya, general secretary of the AIFUCTO, said that regional disparity in economic development was one of the most important factors which promoted the forces of disintegration. He regretted that in spite of capitalistic development in India, feudal forces had retained their strength. Factor mobility was insufficient. Caste-system and professional immobility characterise supply of labour. He also threw light on the role of education, armed forces mass media and other professions in achieving national integration. Dr L.I. Bhushan, Professor of Psychology and president of the Bhagalpur University (Service) Teachers' Association, said that youth festivals and camps, exchange of programmes, development of regional and national languages, autonomy to universities and proper selection of Vice-Chancellors would strengthen national integration.

In a joint paper, Dr R.P. Singh and Dr S.N. Sharma of Patna University, said for achieving national integration, efforts should be made to promote a sense of equal opportunity in political, economic and social terms, a deep sense of the values and obligations of citizenship and a growing identification of the people not with sectional loyalties but with national as a whole, assurance of good and impartial administration and equal treatment for every citizen.

Prof Ram Chandra Prasad, Pro-Vice-Chancellor of Bhagalpur University, who was the chairman of the session, was of the opinion that higher education must promote peace and goodwill rather than chauvinistic nationalism and jingoistic pride.

Development of university societies for establishing ties of friendship with university students in foreign countries and studies of the culture and civilisation of other nations were unfailing means of universal understanding. He suggested universities should be asked to send students on friendship tours during vacations, organise sports competitions and festivals involving students from other countries as well.

NCERT BEd course re-introduced

Mr S.B. Chavan, Union Education Minister has urged State Governments to improve the quality of secondary education and implement vocationalisation scheme to arrest the growing number of educated unemployed. Mr Chavan made these observations on the present education system while addressing the annual meeting of the National Council of Educational Research and Training (NCERT), whose membership comprised State Education Ministers and eminent educationists. Mr Chavan also announced the re-introduction of the four-year integrated courses leading to B.A. B.Ed. and B.Sc. B.Ed. in the regional colleges of education run by NCERT. He said independent assessment indicated that products of four-year integrated courses were generally better prepared to teach and had greater professional commitment. He felt that the regional colleges of education of NCERT located at Ajmer, Bhopal, Bhubaneshwar and Mysore could consider introducing "special courses for the preparation of teachers required for the vocationalisation programme".

History of the South still a blind spot

A two-day annual conference of the South Indian History was held in Trivandrum. It called for effective utilisation of the rich wealth of material available for the reconstruction of India making South Indian studies an important part of the Indian historical discipline. Mr E.K. Nayanar, Chief Minister of Kerala, while inaugurating the conference said the south still remained a blind spot to most historians and to a large section of Indian people. The South was a land of a number of nationalities. India is a multinational country with various nationalities, without the history of the growth and development of which no history of India will be true or correct. Every historical epoch in India should be viewed on the basis of the stage of economic production and the structure of the society, an inseparably bound factors of the social evolution of Indian life.

Dr T.V. Mahalingam in his presidential address said, though the study of the history of small geographical units might be interesting, it was at times prone to the risks of glorifying and overplaying their role in the progress of our country's history and culture to the detriment of that of other regions. This tendency or risk of chauvinism should be enjoyed by a dispassionate study of the history and culture of regions and bringing to bear on such study the comparative progress and interdependence of adjoining areas in their political, economic, social and cultural activities and progress. Dr Mahalingam said that many problems in the history of South India remained unsolved and unless they were solved, the archaeological personality of the area could not be properly understood. Evidence of the evolution of the stone age in peninsular India had been supplied by the results of explorations and the few excavations done in it. The Maharashtra, Karnataka and Andhra areas passed through the lower paleolitic, middle paleolithic and upper paleolithic phases. But in Tamil Nadu much evidence of the upper paleolithic phase could not be seen. Very little was known in Kerala and lower west Karnataka. About three hundred delegates from within the country and a few from abroad attended the conference. Dr V.K. Sukumaran Nayar, Vice-Chancellor, Kerala University, welcomed the delegates and Dr T.K. Ravindaran, Professor of History, proposed a vote of thanks.

Maharashtra Varsities staff to be paid by state govt.

The Maharashtra Government has temporarily accepted the responsibility of payment of salaries to the employees of all the non-agricultural universities in the state. The decision was taken in Bombay when the Chief Minister, Mr A.R. Antulay, and the Education Minister, Mr Baliram Hirey, consulted the governor. Mr O.P. Mehra, who is also Chancellor of the State universities, on the need for evolving a formula to help the universities out of their present financial crisis.

A part of the decision relates to the wiping out of the financial overdraft as on March 31, 1981. In a press release the Vice-Chancellor of Nagpur University, Dr. W.M. Kalmegh, said his university might get the yearly grant of Rs. 1.65 crores besides the overdraft of Rs. 98.5 lakhs. This should give the university an additional amount of Rs 20 lakhs to Rs 30 lakhs for the payment of salaries. The responsibility of payment of salaries has been accepted by the government with effect from March.

U.P. Universities amendment bill passed

The Uttar Pradesh Legislative Assembly has passed a Bill empowering the Governor as the Chancellor of the university to ask for a fresh panel of names for the appointment of Vice-Chancellor in case no name was selected out of the first panel. Mr Sita Ram Nishad, Deputy Minister for Agriculture and Technology, while moving the Bill in the Assembly said in Lucknow that the ugly situation had arisen in the case of Faizabad Agriculture and Technology University where the post of Vice-Chancellor had been lying vacant for quite some time. He said that according to new provisions of the Bill the Government can ask for a fresh panel of names to be considered for appointment of Vice-Chancellor. Till a Vice-Chancellor is appointed by the Chancellor the Registrar of the University continues to perform the current duties of the Vice-Chancellor.

AMU seminar on job-oriented study

A three-day symposium on "Employment Oriented Training at University Level" was held at Aligarh Muslim University. Inaugurating the symposium, Prof. Syed Hamid, Vice-Chancellor, said that the need for imparting job-oriented training at institutions of higher learning had become self-evident in view of the growing unemployment which had tended time and again to upset the calculations and projections of successive Five Year Plans. It is being increasingly realised that higher education should not only be related to life situations but should also culminate in providing suitably employment to its votaries, He hoped that the functioning of the centres imparting professional training, the utility of the courses and the need for an inbuilt process of updating would receive "close exacting and candid attention" of the participants during their three-day deliberations.

NEHU's affairs to be probed

The Executive Council of the North Eastern Hill University (NEHU) has decided to hold a "comprehensive enquiry" on NEHU's affairs. A committee has been appointed to recommend steps to develop the campus in Nagaland and Mizoram. Another committee would review and examine the draft constitution of the post-graduate students union, which at present remain suspended.

New library building inaugurated at Akola

Shri Bhagwantraoji Gaikwad, Agriculture Minister of Maharashtra, inaugurated the new library building at the Punjabrao Krishi Vidyapith at Akola. The Minister went round the library and saw the lending section, reading room, book stacks, reference section, reprography section, back volumes of periodicals section, book bank, and was impressed with the overall coordination and planning. He was very much impressed with the microfilm section wherein he was shown the microfilms and microfiche, which is the latest development in the field of library science for preserving knowledge published in the form of books in a condensed space.

In his address the Minister said that the library was a necessary adjunct of the teacher's aid and the researcher's tool without which he can not make much headway. University library being an integral part of university must be developed into a dynamic institution where the staff and the students including the research workers come for advancement of their knowledge, guidance for the improvement of their skills and assistance for change of their attitudes in different direction. The Minister further said that a well equipped library run by an efficient organisation was in fact the sole of educational institutions. Development of the university library, therefore, has no limits; it is one institution which should continuously grow and never be allowed to stagnate.

The university library of Punjabrao Krishi Vidyapith caters to the needs of staff and students of (1) (College of Agriculture (2) Post Graduate Institute (3) College of Agricultural Engineering and Technology situated at the Campus of the University at Akola. In addition, it caters to the needs of I.C.A.R. Agricultural Scientists, the Research Scientists working at the various Research Stations in the Vidarbha Region. The Progressive Farmers of Vidarbha region are also taking advantage of the university library as about 40 Progressive Farmers of Vidarbha are members of the library.

Prof. Hasan visits Avadh University

Prof. S. Nurul Hasan, Vice-President, Council for Scientific and Industrial Research, visited the Avadh University and addressed a seminar on 'Oudh culture'. He referred to the top-sided analysis of 'culture' which has resulted in a lot of scepticism. Some researchers have explored this from a communal angle which is improper. This will generate hatred in the hearts of a section of people. He wanted the university to take up the impartial evaluation of this work. The 'Ramayana', he said, is generally misunderstood as Tulsi's 'Ram Charitmanas'. The common man is unable to visualise Valmiki in this context. He wanted that work should be done in right earnest to reveal this reality to the people. The establishment of the individual greatness of Valmiki and Tulsidas will definitely boost the welfare of this area as both are complimentary to each other.

While exploring the 'culture of Avadh' it should be kept in mind that there has to be a very minute examination of this area. To stay here and impartially bring to light the reality should be the goal. The ancient manuscripts of this area should be explored and kept in a museum.

The land of Avadh is holy where Lord Rama was born. He preached the practical gospel of right conduct and sanctity which is not concerned with any particular being but is immortal. This is the land which was ruled by personalities like Parikshit, Harishchandra and Raghu and Rshabh Dev were also born here. There is a need to explore all these things and bring them into proper focus. He also made a mention of Poet Jais and the rich contribution he has made to Avadh culture. He advised the university to lay greatest emphasis on the establishment of an instrumentation centre for modern methodology under the faculty of science. This would attract eminent scientists to the university.

NEHU organises seminar on development administration

The Centre for Adult and Continuing Education, NEHU, organised a one-day seminar in Shillong on "Development Administration" sponsored by the Indian Council of Social Science and Research, North-Eastern Regional Centre. Speaking at the Inaugural function, Dr. S.C. Banwar, Acting Vice-Chancellor said that a Seminar of this kind is necessary and useful to administrators, teachers and students. Dr. Banwar further stressed that knowledge of theory is not sufficient without the support of practical experience. He recalled that many a time administrators of high learning had proved themselves a failure when faced with problems of field works.

Dr. C.N. Bhalarao, Director, Regional Centre observed that seminar of this type is useful since it provides a forum of interchange of ideas and experiences. Dr. Bhalarao looked forward that such a seminar would provide solutions to problems faced by many Institutions. He urged the participants to involve themselves with the deliberations of the resource persons so that a reciprocal dialogue would result and solutions to problems be found out. Mr. V. Ramakrishnan in his speech expressed that such a seminar is always useful to academicians as well as administrators. He said that far-sightedness and commonsense is a faithful partner to all the administrators and academicians in executing their duties.

The Seminar was attended by many Central and State Governments employees, teachers, students and Private administrators. In the introductory address, Mr. C.P. Tewari, Reader. I/c. Centre for Adult and Continuing Edn, enlightened the participants of the aim end objective of the Seminar. It is understood that the purpose of the seminar was to infuse in the mind of the participants of the need for scientific and systematic public Administration.

Among other resource persons who delivered lectures were Dr. S. Gabiel, "Development Administration: Nature and Problems". Mr. V. Ramakrishnan : "Development Administration in the District" and Mr. M.M. Varghese "Planning for development : Micro-level Planning". The seminar was solemnised by screening of educational films.

Aligarh plans new projects

The Aligarh Muslim University will have a fully developed and well equipped Technological Complex as part of its ambitious plan for all-round progress and expansion during the next four years. The main thrust of the plan is on introducing new courses in the latest emerging areas besides launching developmental project to generate healthy growth and dynamism. The much-awaited Institute of Petroleum Technology—is likely to start functioning from the next year. While a full-fledged course in Instrumentation Technology is expected to be introduced in 1983, the course in Material Sciences, including Polymer Technology, will be started by 1984, thus making it one of the leading Technological Complexes in the country.

The other schemes on the anvil in the academic sphere, which are in different stages of processing, comprise the establishment of a College of Catering and Hotel Management; the development of Fisheries; the introduction of new courses in Microbiology and Fermentation Technology; the establishment of an Agricultural College. Ample space and essential facilities are available for this purpose in and around the old Fort which was acquired by the University and where advanced research work in Botany and Zoology is already going on.

The long-term plans include the establishment of a Nurses Training College and an addition of 150 beds to the existing 350-bed Hospital attached to the Jawaharlal Nehru Medical College. The intake of the Medical College will then be raised to 100. At present only 50 students are admitted to the M.B.B.S. Course on the basis of a competitive test. The other developmental projects which have been planned by the University aim at solving the problem of acute shortage of hostel accommodation.

Conference on physics of disordered solids

The Department of Physics of the North-Eastern Hill University, Shillong, conducted a three-day conference on "Physics of Disordered Solids". The conference was inaugurated by Dr. S.C. Banwar, Acting Vice-Chancellor of the University. In his inaugural speech, Dr. Banwar stressed on the need of utilising and exploiting local materials for the purpose of scientific progress of the region.

The objective of the conference was to take stock of recent advances in the field of amorphous materials and to review the outstanding problems in understanding of ill-condensed matter, the interest in ill-condensed or amorphous matter in both technological and intellectual. It is observed that amorphous materials are easier and cheaper in manufacturing than the corresponding crystalline forms. Moreover, it is found that the amorphous materials are more sturdy due to easy conglomerate of atoms and sustaining to high stress than other delicate, ordered and crystalline materials in arrangement of atoms. It is expected that this technology will be more useful if materials now used in crystalline forms could be replaced by non-crystalline materials having similar properties. To make non-crystalline materials with desired properties called for a thorough theoretical understanding of these materials in the field of physics. Apart from this practical reason, theoreticals are also attracted to the study of strongly disordered systems which have deep rooted scientific belief that there is a certain order in all things—even in things which looked very disordered. The quest for order in disordered systems had gained momentum in research of solid state physics during the last decade. Great strides have been made in this direction culminating by the award of 1977 Noble Prize in physics to P.W. Anderson, N.F. Mott and J.H. Van Vleck. However, much more is yet to be studied and discovered in this field.

Anantpur centre to be upgraded soon

The postgraduate centre at Anantapur in Andhra Pradesh would soon be upgraded into Sri Krishnadevaraya University from the next academic session. Mr B. Venkatarama, State Education Minister, made this statement in the State Assembly in Hyderabad. He said that the new university would be a unitary and residential type. Both the University Grants Commission and the State Government felt that the research university would be in the interests of the State.

Police right to enter campus upheld

The G.D. Khosla Committee has submitted its report on campus indiscipline in Delhi University. The report has pointed out that the police have a right to enter a university campus to tackle criminal acts by students. It has suggested to all political parties to keep out of educational institutions. It also urged the media to make an objective and factual presentation of facts in reporting students activities.

Mr G.D. Khosla, former Chief Justice of Punjab was appointed by Delhi University Vice-Chancellor, Prof. Gurbakhsh Singh to look into certain incidents of hooliganism and violence in connection with the Delhi University Students' Union elections in September last year.

Mithila Varsity arts faculty bifurcated

The Academic Council of L.N. Mithila University, Darbhanga has decided to bifurcate Arts Faculty into two faculties of Humanities and Social Sciences. A decision was taken keeping in view the present size of the Arts Faculty.

News from Agril. Varsities

IIT Delhi develops smokeless fuel from agricultural and forestry wastes

The Centre for Rural Development and Appropriate Technology and Bio-Chemical Engineering Research Centre of IIT Delhi have been successful in converting the forestry wastes into clean and inexpensive solid pelletized fuel. India has unlimited quality of agricultural wastes, such as, coconut and rice husk, tree leaves, especially chirpine needles, sawdust, grass and even straw can be used to make this fuel. One kilogram of this fuel can give equivalent quantum of energy to that produced by burning of one kilogram of coal. Further, it is pollution free when burned.

Using zoond grass such fuel pellets have been prepared and tested. Now the work is in progress to set up a prototype unit capable of producing these pellets continuously. The appropriate technology concept is being applied suit small and medium scale plants. These plants can be located in areas where such wastes are available in order to avoid the problems associated with collection and transport of these raw materials.

These pellets are prepared by drying the wastes and then converting the cellulosic matter to char. This char is then blended with clay materials normally available locally and then pelletized and extruded into convenient sizes suitable for burning in domestic chulahs.

It is estimated that one kilogram of dried waste can give 0.7 to 0.8 kilogram of this fuel having the same heating value to that of coal. Many organisations, including Indo-German, Dhauladhar Project Palampur, H.P., have shown keen interest in the development of this project. For hilly areas it can eliminate the problem of disposal of large quantity of chirpine needles in addition to giving alternate fuels to the local inhabitants. The availability of such fuel will go a long way in preventing indiscriminate cutting of trees for domestic fuels.

IARI develops smokeless 'Choolah'

The Indian Institute of Agricultural Research has developed a model of smokeless 'choolah' (Indian hearth). The new choola developed would bring down the fuel expenses by half as compare to that of the conventional choola through a technique which helped optimum utilisation of the heat. A cement pipe attached to the choolah would take the smoke straight outside the house while the flames would not be allowed to leap outside the hearth facilitating optimum utilisation of the heat. Moreover, it was designed in such a way that food could be cooked simultaneously in two to three rings of the choola using fuel in only one ring.

Construction activities of HPAU at standstill

Construction work at the Himachal Pradesh Agriculture University campus has come to a standstill on account of non-availability of funds. The contruction of the Rs 45-lakh farmers' hostel-cum-communication centre was started in February 1979. So far, a sum of Rs 30 lakhs has been spent on it. When completed, the centre will provide accommodation to about 100 farmers. The Rs 32-lakh university auditorium, with a seating capacity for 1,000, is still incomplete. Its completion and furnishing will cost about Rs 15 lakhs. The other buildings under construction at the university campus include a 120-bed students' hostel, a 10-bed teachers' hostel, 26 houses for teaching and non-teaching employees and an animal sciences laboratory. Against Rs 41.64 lakhs provided by the State Government for construction work in 1979-80, a sum of Rs 25 lakhs only was provided in 1980-81. The grant-in-aid given by the Indian Council of Agricultural Research (I.C.A.R.) was increased from Rs 33.68 lakhs in 1979-80 to Rs 37.85 lakhs in 1980-81. The university authorities, however, feel that the grants-in-aid received from the state and the I.C.A.R. are insufficient. The prices of building materials are rising. Moreover, the I.C.A.R. does not provide additional funds to the universities located in hill areas.

National award for PAU scientist

'Jeevan Jach' a book written in Punjabi by Dr Ranjit Singh, Head of the Department of Extension Education of the Punjab Agricultural University, has been selected for a national award by the Government of India in the National Prize Competition for literature for neo-literates. The Award carries a cash prize of Rs 1000. This is Dr Singh's third book to get the national award. His earlier books had won national award under the National competition of Basic literature which was held by the Union Ministry for Agriculture and Community Development. Dr Singh is also the Secretary-cum-Treasurer of the Punjab Society and Adult Education and President of the Ludhiana chapter of Indian Society of Extension Education.

News from UGC

UGC suggestions on power projects

A study of the hills, dams and forests in the western ghats points out that the interests of the weaker sections of society should be protected while planning irrigation and power projects besides ensuring that they are in harmony with the environment. The study, financed by the University Grants Commission, alongwith some other scientific organizations, has pointed out that it is the local peasants and tribals who have to bear the brunt of the immediate consequences of the development process involving exploitation of natural resources. The hardship can be avoided by proper planning to meet their basic needs like fuel and food, simultaneously with the construction of the project. Indiscriminate feeling of trees for fuel leads to the devastation of the catchment area, causing heavy siltation of the dam under the project. The study, which included the Panshet Dam near Pune, also points out that the rich wild life which was once harboured by the hilly slopes of the reservoir has all but disappeared with the destruction of the tree cover. The study conducted by Professor Madhav Gadgil of the Indian Institute of Science, Bangalore, suggests that while planning a development project, the whole gamut of the interacting natural resources of the region, as such, rather than of the specific project area alone, should be taken into consideration. This is necessary to make the project environmentally sound.

Madhuriben suggests change in study system

Dr (Mrs.) Madhuriben Shah, Chairman of the University Grants Commission, has strongly advocated structural changes in the education pattern and called for plan *de novo* for the method of teaching for adjustability in society.

She was delivering two lectures on "future perspectives in education" under the Rao Bahadur Kamlashanker P. Trivedi lecture series sponsored by the South Gujarat University in Surat. She said, "our educational pattern should be performance and result-oriented and our students should be inculcated with such training which would enable them to self-study and research work. It was high time that the teaching community should change our attitude and aptitude to create confidence in the student community and develop harmonious relations, which would mould them into useful citizens.

News from Abroad

Indology seminar held at Federal Republic of Germany

A Seminar on "Indology in India and Germany: Problems of Information, Coordination and Cooperation" was organised at the Eberhard Karls University, Tuebingen from March 31 to April 3, 1981 under the Indo-FRG Cultural Exchange Programme. The Seminar was inaugurated by Dr. Kurt Mueller, Head, Department of Culture, FRG Foreign Office. The Seminar was also addressed by Mr. A. Theis, President, Eberhard Karls University, Tuebingen and Prof. Dr. A.M. Khusro, Ambassador of India, Bonn.

28 eminent Indologists from Germany participated in this Seminar whereas Indian side sponsored a 3-man official delegation consisting of Dr. R.K. Sharma, Deputy Educational Adviser (Sanskrit) Ministry of Education, Dr. Lokesh Chandra, Member of Parliament (Rajya Sabha) and Dr. R.C. Dwivedi, Head of the Department of Sanskrit, Rajasthan University, Jaipur, besides some other local Indian Indologists. No doubt the main theme of discussions was Sanskrit and ancient Indian history and Culture, the topics like Indian language, literature, archives, archaeology and modern Indian studies were also dealt. Severel well prepared papers were also contributed by both German and Indian participants. The Seminar was financed by the Cultural Department of FRG Foreign Office.

Interest in the Indian cultural heritage has an old illustrious tradition in Germany. Out of 55 universities in FRG, 20 universities have Department of Indological studies which are engaged in teaching and research in Indian philosophy and culture, language and literature. This was the first time that such a Seminar was held in FRG where all the eminent German Indologists were able to get together and also had the opportunity of exchange of views with the Indian Indologists eventhough each university has been carrying on its programme of Indian studies individually in the past.

Awards & Medals

NCERT awards for teachers

The National Council of Educational Research and Training has awarded 10 teachers for their innovations in the field of teacher education. The award winners who were chosen from emong participants in the seventh all-India competition of seminar readings programme for teacher educators held this year will receive Rs 500 along with a certificate. Papers on the educational problems faced by teachers training institutions and the experiments or innovations carried out by them were read at the competition. The award winners are : Mr G.B. Bajpai (Madhya Pradesh), Dr Ravindra Agnihotri (Rajasthan), Mrs Uma Siddhanta (West Bengal), Dr L.M. Shivanekar (Maharashtra), Mr Kailash Chandra Bansal (Madhya Pradesh), Mr Rajendra Singh Kothari (Rajasthan), Mr Nand Kishore Shrivastava (Rajasthan), Mrs Padman Vasudeo Hasamnis (Maharashtra), Mr S.N. Joshi (Maharashtra) and Miss Zareena Faruqui (U.P.)

Kasturiranga memorial national award

Mr P.N. Haksar, formar Principal Secretary to the Prime Minister and Deputy Chairman of the Planning Commission has been awarded the Kasturiranga Memorial National Award for 1980-81. The object of the Award instituted on the occasion of the centenary celebrations of THE HINDU is to encourage in a small, but tangible, way free intellectual inquiry and research on a topic of human and national relevance. The selection was made by the Award Committee consisting of Mr G. Parthasarathi (Chairman), Dr. Y. Nayudamma, Prof. M. G. K. Menon, Prof. Sukumar Chakravarty and Mr. G. Kasturi.

The subject Mr. Haksar has chosen for study and writing is "India since Independence Reflections on developments, national and international, in the last 33 years."

Personal

1. **Dr (Mrs) Jyoti Hari Prasad Trivedi has been appointed Vice-Chancellor of SNDT Women's University.**
2. **Dr Y. Nayudamma has been appointed Vice-Chancellor of Jawaharlal Nehru University.**
3. **Mr Krishna Kriplani has taken over as Chairman of the National Book Trust.**

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

Anthropology

1. Baruah, Sunil Kumar. A study on certain problems of fertility among the Khasi women of Meghalaya. Gauhati University.

Biochemistry

1. Panneerselvam, M. Extracellular acid proteinases from Aspergillus fumigatus: Production, Characterization and applications in leather manufacture. University of Madras.

Marine Biology

1. Achuthan Nair, Govinda Pillai. Biology of the tropical isopods, Porcellio laevis (Latreille) and Alitropus types M. Edwards. University of Kerala.
2. Balachandran, T. Studies on meroplankton. University of Cochin.
3. Jayaprakas, V. Biology of Etroplus suratensis (Bloch) University of Kerala.

Botany

1. Babu Rao, M. Studies of mutagenesis of Cucumis pubescens Willd. Osmania University.
2. Cynthia, Mary Esther. Ecological investigations on phytoplankton of two small lakes situated in Hyderabad Development Area. Osmania University.
3. Daleep Singh. Studies on the physiological ecology of Peganum hermala Linn.: A species with restricted distribution. University of Rajasthan.
4. Dhand, Suraj Kanta. Studies on the seed borne fungi of some pulses and their role in seed deterioration in storage. Osmania University.
5. Ellis, J.L. Flora of Nallamalias, Andhra Pradesh, Eastern ghats of Peninsular India. University of Calcutta.
6. Gena, Chatur Bhuj. Cytotaxonomical, morphological and experimental studies of the genus Isoetes L. in Rajasthan. University of Jaipur.
7. Ghosh, Mohanlal. Studies on growth, development and senescence of some essential oil yielding plants with special reference of their oil content. University of Burdwan.
8. Kazmi, Syed Mohsin Uddin. Studies on respiration of different isolates of Botryodiplodia theobromae pat. University of Saugar.
9. Lokendar Rao, K. Studies on seedling handedness in Cajanus cajan (L) Millsp (Fabaceae) and its possible influence on yield. Kakatiya University.
10. Majumdar, Sona. Ecophysiological studies on certain leguminous species. University of Calcutta.
11. Mani, K. Studies on the physiology of sporulation of Pesialotia palmarum Cooke, in culture. University of Madras.
12. Moitra, Alok Kumar. Cyto-and histochemical studies on the reproductive structure of some gymnosperms. University of Delhi.
13. Muthukumar, Ganapathy. Effect of tannins on soil microorganisms and crops. University of Madras.
14. Nayak, Dipakkumar. Studies on the growth and improvement of an edible mushroom, Calocybe indica P & C. University of Calcutta.
15. Ohri, Deepak. Cytogenetics of garden gladiolus and Bougainvillea. Panjab University.
16. Patil, Bhaskar Dnyanu. Pathophysiological studies of sunflower and intramural aeromycological studies of a hospital. Shivaji University.
17. Rama Gopal, G. Physiological studies on the influence of chloride and sulphate salinity on seedling metabolism of peanut, Arachis hypogaea L. Sri Venkateswara University.
18. Ramaswamy, V. Studies on the role of phenolics and lignin in the rice blast disease. University of Madras.
19. Ray, Syamalkanti. Some studies on the physiology and adaptability of Dorkia gummosa in different soils of West Bengal. University of Calcutta.
20. Saxena, Arati. Development of seed in triticale. University of Delhi.
21. Shahda, Waffaa Taher. Pathogenicity in relation to the age of the plant. University of Delhi.
22. Shree, M.P. Studies on the helminthosporiose of sorghum cultivars and hybrids. Bangalore University.
23. Singh, Om Pal. Effects of certain chemical pollutants on plant chromosomes. University of Calcutta.
24. Singh, Tuntun Prasad. Chromosomal studies and allied investigations of different taxa of Labiatae with special reference to Ocimum and a review of chemical analysis of the active medicinal principle. University of Calcutta.
25. Tejavathi, D.H. Cytoembryological studies in some members of Cyperaceae. Bangalore University.

Zoology

1. Akbarsha, M.A. Studies on the structure, development and function of the parathyroid gland of the Indian garden lizard, Calotes versicolor (Daudin). University of Madras.
2. Anuradha, K. Ecology and behaviour of opilionids in the vicinity of Bangalore. Bangalore University.
3. Awatramani, Govind M. Limnological studies of Sagar Lake, Sagar. University of Saugar.
4. Bandyopadhyay, Samirbehari. Studies on the cranial osteomycology of some teleostean fishes of India. University of Calcutta.
5. Bhonsle, Heeroji Rao. Investigations into some metabolic adaptations of Tanqua tiara Linstow, 1879 in relation to its organ of infection. Kakatiya University.
6. Chakraborti, Parimalendu. Studies on the hydrobiology of some fresh water fisheries. University of Burdwan.
7. Gandal, Padmakar Rambhau. Some physiological studies on tropical pest Achoea janata (L). Marathwada University.
8. Giri, Asok Kumar. Comparative cytochemical studies on normal and abnormal cells in vivo and in vitro and on the effect of certain pollutants on mammalian systems. University of Calcutta.
9. Judson, P. Effects of exogenous juvenile hormone on the reproductive system of the bug, Dysdercus similis Freeman (Heteroptera-pyrrhccoride). Osmania University.
10. K. Mohinder Kaur. A comparative study of the external genitalia in the super family Noctuoidea (Lepidoptera). Panjab University.
11. Kaliwal, Basappa Basawanneppa. Physiology of reproduction in female albino rats: Effect of carrot seed, Daucus Carota, extract on ovarian growth implantation, and pregnency in albino rats. Karnatak Unviersity.
12. Kapshikar, Meena Laxman. Studies on some aspects of the reproduction and fertility control in the bandicoot, Bandicota bengalensis (Gray). Nagpur University.
13. Karmakar, Amal Krishna. A comparative study of the pituitary of some teleost fishes. University of Calcutta.
14. Kasinathan, S. Spermatogenetic regulation in South Indian green frog, Rana hexadactyla Lesson. *D.Sc.* University of Madras.
15. Kohli, Sunil Kumar. Studies on the taxonomy of some Indian Baridinae and Ceuthorhynchinae (Curculionidae: Coleoptera). Panjab University.
16. Krishnamachari, E. Osmotic stress and nitrogen metabolism in a Euryhaline poikilotherm. Bangalore University.
17. Kulshrestha, Bina. Haemopoitic genetic markers in some human populations from the old Punjab State, India. Panjab University.
18. Mariamma, P.J. Physiological studies on the tail regeneration in the house lizard, Hemidactylus flaviviridis. University of Calicut.

19. Medya, Bhabes Chandra. Studies on the hypothalamohypophyseal complex in relation to gonadal behaviour in a fresh water major carp, Cirrhinus mrigala. University of Burdwan.

20. Mittal, Pradeep Kumar. Studies on DDT residue in River Jamuna in Delhi and its bioaccumulation and degradation in certain non-target animals. University of Delhi.

21. Mitra, Dilip Kumar. Nematode parasites of some birds of Birbhum District. University of Burdwan.

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UNIVERSITY OF BOMBAY

Applications are invited in the prescribed form for the following posts in the University :

	Post/s	*Department/Centre*
†1.	Seth Walchand Hirachand Professor/Reader in Transport Economics	Economics
2.	Two Readers in Industrial Economics/Public Finance	Centre of Advanced Study in Economics
3.	Reader	Statistics
4.	Lecturer	-do-
5.	Reader in Public Administration	Civics & Politics
6.	Reader	Applied Psychology
*7.	Professor	Law
*8.	Professor of Constitutional Law	-do-
*9.	Reader	-do-
10.	Two Lecturers	-do-
11.	Reader in Chemistry	Chemistry
12.	Lecturer in Chemistry	-do-
13.	Lecturer in Chemistry	-do-
14.	Reader	Physics
†15.	Professor of Library Science	Library Science
16.	Reader in German	Foreign Languages
17.	Reader in French	-do-
18.	Lecturer in Russian	-do-
19.	Reader	Centre of East African Studies (Area Studies Programme)
20.	Lecturer	-do-
21.	Reader in Organic Chemistry	Chemical Technology
22.	Reader in Colour Chemistry	-do-

The pay-scales of the posts are as follows :—

Professor—Rs. 1500-60-1800-100-2000-125/2-2500
Reader—Rs. 1200-50-1300-100-1900
Lecturer—Rs. 700-40-1100-50-1600.

In addition to pay, Dearness Allowance, House Rent Allowance and Compensatory Local Allowance will be paid according to the University rules. All posts carry the benefits of Provident Fund and Gratuity according to the University rules. A higher starting pay may be given to persons appointed to the posts of Professor and Reader in special cases. The appointments will be made on probation for two years but the probationary period may be reduced by the Executive Council in special cases. Other things being equal, preference will be given to candidates from backward classes. The posts of Lecturer are reserved for candidates belonging to scheduled castes and scheduled tribes and will be filled up by appointment of such persons only as shall satisfy the requirements regarding qualifications, experience etc. laid down for the posts; provided, however, that if no candidate is available from scheduled castes and scheduled tribes, the posts will be filled up by appointment of duly qualified persons from among the other candidates.

The **minimum qualifications** prescribed for the posts, other than the post at serial number 22, are as under :—

Professor

An eminent scholar with published work of high quality, actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

Or

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Reader

Good academic record with a Doctor's degree or equivalent published work. Evidence of being actively engaged in (*i*) research or (*ii*) innovation in teaching methods or (*iii*) production of teaching materials.

About five year's experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

Lecturer

(*a*) A Doctor's degree or research work of an equally high standard; and

(*b*) Consistently good academic record with Ist or high 2nd class (B + in the seven-point scale) Master's degree in a relevant subject or an equivalent degree of a foreign University.

Having regard to the need for developing inter-disciplinary programmes, the degrees in (*a*) and (*b*) above may be in relevant subjects.

The Executive Council may relax any of the qualifications prescribed in (*b*) above provided that the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard.

If a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, the Executive Council may appoint a person possessing a consistently good academic record (weightage being given to M. Phil. or equivalent degree or research work of quality) provided he has done research work for at least two years or has practical experience in a research laboratory/organization on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which, he will not be able to earn future increments until he fulfils these requirements.

Explanation : (1) For determining consistently good academic record, a candidate should either have an average of 55% marks at the two examinations prior to Master's degree (irrespective of the marks obtained in any of the two examinations) or 50% marks at each of the two examinations separately.

(2) For determining high second class, the mid-point between the minimum percentages of marks fixed by a University for award of second class and first class may be taken.

The **additional qualifications** prescribed for the posts at serial numbers 1, 2, 5 to 7, 9, 11 to 16 and 18 to 21 mentioned above are as under :—

1. **Seth Walchand Hirachand Professor/Reader in Transport Economics**—High level of competence in theoretical and applied Transport Economics evidenced by substantial published research work of high quality in the areas of specialisation.

2. **Two Readers in Industrial Economics/Public Finance**—Specialisation in Industrial Economics/Public Finance. Published research work of high quality in the areas of specialisation.

5. **Reader in Public Administration**—The Doctor's degree or equivalent published work must be in Public Administration. Knowledge of public administration theories and of public administration in India.

6. **Reader (Applied Psychology)**—Preferably with specialisation in one or more of the following fields—Clinical, Counselling, Social and Industrial Psychology.

7. **Professor (Law)**—Specialisation in Jurisprudence and/or Criminal Law.

9. **Reader (Law)**—Specialisation in Law of Taxation and/or Labour Law.

11. **Reader in Chemistry**—The Doctor's degree or equivalent published work must be in Physical Chemistry. Specialisation in chemical thermodynamics or solid state chemistry or nuclear and radio chemistry.

12. **Lecturer in Chemistry**—The Doctor's degree or equivalent research work must be in Physical Chemistry. Familiarity with physical methods in Chemistry.

13. **Lecturer in Chemistry**—The Master's degree must be in Analytical Chemistry. The Doctor's degree or equivalent research work preferably in Analytical Chemistry or in any other branch of Chemistry. Research work preferably in bio-analysis and analysis of food materials.

14. **Reader (Physics)**—Experience of research in Laser Physics.

15. **Professor of Library Science**—Out of ten years' experience of teaching and/or research, at least five years' experience must be in Library Science. Experience of management of Library at a College/University/Institution level for at least ten years.

16. **Reader in German**—Specialisation in German literature and/or German linguistics will be desirable.

18. **Lecturer in Russian**—Post-graduate diploma in the teaching of Russian will be desirable.

19. **Reader (Centre of East African Studies)**—Preferably with specialisation in Political Science/Sociology/History/Geography. Experience of teaching/research in African Studies.

20. **Lecturer (Centre of East African Studies)**—Preferably with specialisation in Political Science/Sociology/History/Geography/Economics. Research work in African Studies.

21. **Reader in Organic Chemistry**—The Doctor's degree or equivalent published work must be in Organic Chemistry. Experience in the use of modern spectroscopic and analytical methods as well as experience in guiding research students in some area of Applied Chemistry.

The **qualifications** prescribed for the post at serial number 22 are as under:—

22. **Reader in Colour Chemistry**—(*a*) Consistently good academic record with a doctorate degree in Technology of Intermediates and Dyes of equivalent published work. Evidence of being actively engaged in (*i*) research or (*ii*) innovation in teaching methods or (*iii*) production of teaching materials.

(*b*) About five years' experience of teaching and/or research in the dyestuff field provided that at least three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

Eight copies of the application in the prercribed form, together with copies of certificates, should be sent in an envelope superscribed with "Application for the post of......." so as to reach the Registrar (Teaching Appointments Unit), University of Bombay, Fort, Bombay-400032, on or before **Monday, 11th May, 1981**. Candidates from abroad, Andaman and Nicobar Islands and Lakshadweep may send their applications so as to reach the Registrar on or before **Monday, 25th May, 1981**. Applications received after the last date will not be considered.

Prescribed forms of application can be had in person, free of charge, from the Teaching Appointments Unit, Registrar's Office (Room No. 110), University of Bombay, Fort, Bombay-400032. Requests for supply of a set of eight prescribed forms by post should be made sufficiently in advance with a self-addressed stamped (Rs. 1.80) envelope of the size of 27 x 12 cms.

Candidates should send with every application a crossed Indian Postal Order or a crossed Demand Draft on a scheduled bank for Rs. 10/- drawn in favour of the Registrar, University of Bombay, payable at Bombay, as application fee. Candidates who apply for more than one post should send separate applications along with the requisite fee by means of a crossed Indian Postal Order/Demand Draft. Money orders or cheques or cash will not be accepted by the University. The fee will not be refunded once an application has been received by the University.

Incomplete applications and applications without the requisite fee will not be considered. Applications on plain paper will also not be considered.

Candidates are advised to satisfy themselves before applying that they possess the prescribed qualifications and it is for the candidates themselves to ensure that they possess the prescribed qualifications. No inquiry asking for advice as to eligibility will be entertained.

Candidates called for interview will have to present themselves at their own expenses.

Canvassing, direct or indirect, will be a disqualification.

Notes

+ The post of Seth Walchand Hirachand Reader in Transport Economics will be filled in only if no suitable candidate is available for the post of Seth Walchand Hirachand Professor of Transport Economics. Applicants should state in their applications the post i.e. Professor and/or Reader for which they wish to be considered.

* In respect of posts at serial numbers 7, 8 and 9, professional experience can be considered as equivalent to teaching or research experience.

++ The person to be appointed to the post of Professor of Library Science will be designated as Librarian also.

G.M. Rajarshi
REGISTRAR

Anekant Education Society's

TULJARAM CHATURCHAND COLLEGE OF ARTS, SCIENCE AND COMMERCE BARAMATI (DIST : PUNE)

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SENIOR COLLEGE

1. Part-Time Lecturer in Mercantile Law.
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   Scale of pay: Rs. 350-20-550-25-650-Assessment-25-800.
2. Lecturers in Physics, Botany, Zoology, Statistics, Defence Studies, COMMERCE and PSYCHOLOGY.
   Qualifications : Consistently good academic record and at least Higher Second Class or B+(B Plus) at Master's Degree and M.Phil. or Ph.D.
   Scale of Pay : Rs. 700-40-1100-50-1300-Assessment-50-1600.
   B.C, CANDIDATES PREFERRED.

Apply to the undersigned on or before **10th May 1981** in the prescribed form available in the office on payment of Rs. 2/- by I.P.O. or M.O. and self addressed stamped (35 paise) envelope. CANDIDATES WHO HAVE APPLIED PREVIOUSLY NEED NOT APPLY AGAIN.

Dr. J.K. Godha
PRINCIPAL

GURU NANAK DEV UNIVERSITY AMRITSAR

(Punjab School of Economics, Department of Business & Commerce)

Advertisement No. 3/81

Applications are invited for the following posts on prescribed form obtainable (free of cost) from the office of the Registrar by making written request accompanied by self-addressed stamped envelope of 23 × 10 cms so as to reach this office by **18.5.1981** along with crossed Indian Postal Order(s) for Rs. 7.50 (not refundable) drawn in favour of Registrar, Guru Nanak Dev University, Amritsar. Persons already in employment must send their applications through their employers. Candidates from within India may not be considered in absentia. Higher start in the grade may be given depending on qualifications and experience.

1. Professor of Commerce (Grade Rs. 1500-60-1800-100-2000-125/2-2500).

   General qualifications: An eminent scholar with published work of high quality: actively engaged in research, ten years' experience of teaching and/or research experience of guiding research at doctoral level. OR An outstanding scholar with established reputation who has made significant contribution to knowledge.

Specialisation : Financial and Management Accounting/Production and Materials Management/Marketing Management.

2. Readers in Commerce (3) : (Grade Rs. 1200-50-1300-60-1900) General qualifications : Good academic record with a doctoral degree or equivalent published work : evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials; about five years experience of teaching and/or research including at least three years as lecturer in an equivalent position (may be relaxed in the case of candidates with outstanding research work). Specialisations : Financial and Management Accounting/Production and Materials Management/Personnel Management Quantitative Techniques and Operations Research.

3. Lecturers in Commerce (3) (Grade Rs. 700-40-1100-50-1600).

General Qualifications: (a) A doctoral degree or research work of an equally high standard ; (b) Consistently good academic record, that is, first or high Second Class (B) in the seven point scale at the Master's level; and either an average of 55% marks of the two examinations prior to Master's degree of 50% marks in each of the two examinations separately. The following relaxations may be allowed :

i) In the case of candidates who have obtained more than 55% marks at the M.A /M.Sc. level and who also possess Ph.D., the criteria of consistently good academic record may not apply.

ii) In the case of candidates who have obtained between 50 and 55% marks in the M.A./M.Sc. examination and also possess Ph.D. of M.Phill., the requirement of 50% marks may apply only to one of the three lower examinations.

iii) In the case of candidates who have obtained first Class M.A /M.Sc., the requirement of 50% marks may apply to any one of the three lower examinations.

Specialisations: Advanced Accounting and Auditing/Financial and Management Accounting/Production and Materials Management/Quantitative Techniques and Operations Research/Personnel Management : Marketing Management/Management of Public Enterprise. Desirable Knowledge of Computer Programming and familiarity with quantitative Techniques.

4. Research Fellows (2) in Economics: One of University and one of UGC. (Rs. 600/- p.m. fixed).

Qualifications : First or High Second Class Master's degree and good academic record in the relevant subject : aptitude for research.

REGISTRAR

PUNJABI UNIVERSITY PATIALA

No. 54/PRO/Estt/SPS/SPL/80.

Corrigendum

Reference Punjabi University advertisement No. 54/PRO/Estt/SPS/80 published on April 15, 1981 the last date for receipt of applicatians has been extended upto **May 3, 1981** and applications through proper channel will be received upto **May 7, 1981.**

REGISTRAR

MAHARSHI DAYANAND UNIVERSITY, ROHTAK

Advertisement No. 1/81

APPLICATIONS are invited (through proper channel in the case of those already in employment) for the following posts:

UNIVERSITY TEACHING DEPARTMENTS

Professors in: Economics, Sociology and Business Management (one each).

Readers in: Mathematics, Sociology, Law and History (one each).

Lecturers in: Physics (1) Sociology (2) Sanskrit (2) Commerce (1) Business Management (3) One against leave vacancy and History (2) One leave vacancy upto 3.2.82.

QUALIFICATIONS

(1) **Professors**: Very good academic record, Doctoral Degree, Experience of guiding research ten years' teaching experience of Post-graduate classes about 5 years' as Reader.

(2) **Readers**: Very good academic record, Doctoral Degree at least 5 years' experience of teaching Post-graduate classes.

(3) **Lecturers**: Good academic record, Doctoral Degree or high standard research work.

For Lecturers in: **Sanskrit**: Candidates having knowledge of Pali & Prakrit at M.A level will be preferred, should have ability to teach through the medium of Sanskrit.

SPECIALISATIONS

Professor in Economics: Macrostatic and Macrodynamic Economics.

Professor in Sociology: Rural and Political Sociology.

Professor in Business Management: Personal Management: or Financial Management or Marketing Management.

Readers in Mathematics: Pure Mathematics.

Reader in Sociology: Urban Sociology or Social Psychology at the Ph.D. Level.

Reader in Law: Company, Taxation, Mercantile Law.

Reader in History: Medieval Indian History.

Lecturer in Physics: Electronics/Lasers/Spectroscopy/Solid State Physics/Particle Physics.

Lecturers in Sociology: Demography and Political Sociology at the Ph.D. Level.

Lecturer in Sanskrit: For one post Poetics at M.A. & Ph.D. level and for other post Viyakarana at M.A. & Ph.D. level.

Lecturer in Commerce: Accountancy/General Management.

Lecturer in Business Management: Personnel/Production Finance.

Lecturer in History: For one post Epigraphy, Numismatics & Archaeology and for other post (Against leave vacancy upto 3.2.1982) Ancient Indian History.

UNIVERSITY EVENING COLLEGE ROHTAK. LECTURERS IN COMMERCE AND ENGLISH (ONE EACH)

(a) A consistently good academic record with at least First or High Second Class (B in the seven point scale) Masters' Degree in relevant subject or an equivalent Degree of a foreign University; and

(b) an M. Phil. degree or a recognised degree beyond the Masters' level or published work indicating the capacity of a candidate for independent research work.

UNIVERSITY COLLEGE ROHTAK: LECTURERS: (Rs. 700-40-1100/50-1300-Assessment 50-1600).

(i) In Military Science, Sanskrit, Psychology, Zoology & Geography.

(ii) Physics, Botany, Geography (These posts are against leave vacancies upto 8.9.81, 6.12.81 & 8.10.81 respectively).

QUALIFICATIONS

A consistently good academic record with atleast high Second Class (55% marks) or grade B (7 point scale) at the Masters' level degree in the relevant subject with the following relaxations:

(A) In the case of those candidates who have obtained more than 55% marks at the M.A./M.Sc. level and who also possess a Ph.D. degree the criterion of consistently good record will not apply at all.

(B) In the case of those candidates who have obtained more than 50% marks in M.A./M.Sc. and also Ph.D. degree and candidates who have obtained 55% marks in M.A./M.Sc. and also possess M. Phil degree the requirement of 50% marks will apply to only one of three lower examinations.

(C) In the case of those candidates who have obtained a first class first M.A /M Sc. the requirement of obtaining 50% marks will apply in the case of any one of the three lower Exam.

(D) The fraction of marks of 0.5% or above would be raised to next higher whole number i.e. 54.5% to 54.9% would be raised to 55 per cent.

EXPLANATION

For determining consistently good record a candidate should either have average of 55 percent marks in two examinations prior to Masters' degree or 50 per cent marks in each of any two examinations separately.

Prior to Master's degree the following two examinations will be considered.

(a) Matric or its equivalent (b) Higher Secondary (Final) or its equivalent (c) F.A./F.Sc., B.A./B.Sc. Part.-I (d) B.A./B.Sc. (Final).

Adequate knowledge of Hindi.

AGE: 21 to 35 years. (Relaxable for Scheduled Caste/Scheduled Tribes and other Backward Classes. Ex-Servicemen/Wives of Serving disabled Military personnel and widows of those killed in action as per Govt. Instructions.).

21 to 40 Years: For persons holding Ph.D. Degree.

21 to 45 years: For persons working in Education Department.

NON-TEACHING POSTS

DEPUTY REGISTRARS (2): Rs. 1100-50-1600 (un-revised).

(i) A Second Class Masters' Degree/LL.B. Degree relaxable in Division/Class in the case of internal candidates where the record of service is exceptionally good.

(ii) 10 years experience out of which 5 years as Assistant Registrar in a University/examining Body or 5 years as Principal of a Degree College.

PROGRAMME CO-ORDINATOR NSS: Rs. 1100-50-1600.

(i) A Second Class Master's Degree in Arts / Science / Commerce / Social Work.

(ii) At least three years experience of Social Service work, preferably in National Service Scheme Organisation.

MEDICAL OFFICER: Rs. 400-30-700/40-1100.

M.B.B.S. or an equivalent Degree from an Indian or a foreign University. Preference will be given to experienced hands. Retired hands who are otherwise suitable, can be considered.

ASSISTANT SPORTS OFFICER (LADY): Rs. 700-30-850/900-40-1100-EB-50-1400.

(i) M.A. (Physical Education) or M.Ed. in the Second division.

(ii) Five years experience in a University/College. Preference will be given to N.I.S. trained persons.

SENIOR STORE KEEPER IN CHEMISTRY Rs. 525-15-600-20-660/700-30-850-EB-890-40-1050.

Matric with Science/B.Sc. degree. Candidates with Matric qualification should have ten years experience of handling of Chemistry stores of Post-Graduate Deptt /University. Candidates with B.Sc. degree should have five years experience. The candidates should know typing and should be well-versed with processing of orders and maintenance of store records.

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A good Matriculate with Science. possessing 5 years independent experience of handling gas plant in Chemistry Department or a Science graduate, with experience.

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(ii) Registered as Pharmacist with Haryana Pharmacy Council.

(iii) Qualified Pharmacist from any recognised University/Institution.

(iv) Hindi up to Matric.

PROOF READER: Rs. 525-15-600-20 660/700-30-850-EB-890-40-1050.

At least a Post-Graduate degree with 5 years experience as Proof-reader in a University/Govt. office of a reputed concern. Knowledge of Hindi and English essential.

DRIVERS: Rs. 420-10-490/525-15-600-EB-20-700. Plus special pay according to duty.

Literate with ten years experience of driving heavy and light vehicles. Age not more than 40 years.

UNIVERSITY PRESS: FOREMAN: Rs. 525-15-600-20-660/700-30-850-EB-890-40-1050.

At least Matriculation with seven years practical experience of all jobs in Printing Press including composition. Printing and binding out of which at least three years should be in supervisory capacity.

MACHINEMEN (SENIOR): Rs. 420-10-490/525-15-600-EB-20-700.

At least Middle with three years practical experience on treadle and cylinder Printing Machines. Should have knowledge of three colours printing.

MACHINEMAN (JUNIOR): Rs. 400-10-490/540-15-600-EB-20-660.

At least Middle with three years practical experience on tradle and cylinder printing Machines. should have knowledge of three colours printing.

DISTRIBUTORS: Rs. 400-10-490/540-15-600-EB-20-660.

At least Matriculation with seven years practical experience of all aspects of quality building including warehouse machine. cutting, ruling, folding, attaching, tooling etc.

JUNIOR BINDERS: Rs. 350-5-400-10-500.

At least Middle with three year practical experience of all building operations including warehouse machines, cutting, ruling folding, embossing, perforating, stitching etc.

COMPOSITORS: Rs. 400-10-490/540-15-600-EB-20-660.

At least Matriculation with seven years experience of Eng. and Hindi composing in press of repute.

HELPER: Rs. 300-5-400-10-430.

Middle with at least two years experience as Helper to Machineman in printing press.

UNIVERSITY COLLEGE ROHTAK: JUNIOR LIBRARIANS (2) Rs. 420-10-490/525-15-600-EB-20-700.

(i) B.A./B.Sc./B.Com.

(ii) Certificate in Library Science.

RESTORER: Rs. 400-10-490/540-15-600.

Matric.

U.G.C. pay scales for all categories of teaching posts with usual allowances and benefit of contributory Provident Fund. Reservation for Ex-Servicemen/B.C./S.C./S.T.. candidates as per rules and no application fee from them.

Qualifications relaxable and higher start admissible in deserving cases for internal candidates. Knowledge of Hindi essential for posts. Number of posts is liable to be increased or decreased.

Applications on plain paper with full bio-data, attested testimonials and crossed Postal order(s) for Rs 5/- for posts carrying basic pay of less than Rs. 300/- and Rs. 10/- for posts carrying higher basic pay, in favour of the Chief Accounts Officer. payable at Post Office, Rohtak, be sent to the Registrar by **20.5.1981.**

REGISTRAR

ANDHRA PRADESH AGRICULTURAL UNIVERSITY

HYDERABAD-500014

Advertisement No. 2/R.C./81, dt. 2.4.81

Applications in the prescribed form together with a Registration fee of Rs. 5/- are invited for the under mentioned posts so as to reach the undersigned on or before **15.5.1981.**

Number of posts in each category

Subject	Professor Cadre	Assoc. Prof. Cadre	Asst. Prof. Cadre
A. FACULTY OF AGRICULTURE			
(a) Plant Breeding	1	14	7
(b) Plant Physiology	—	4	7
(c) Soil Physics	1	2	—
(d) Soil Sc. & Agril Chemistry	1	8	11
(e) Extension	1	6	3
(f) Horticulture	—	5	1
(g) Entomology	1	3	11
(h) Statistics	—	—	4
(i) Agril. Economics	—	5	3
(j) Plant Pathology	—	5	11
(k) Agril. Engineering	1	6	9
(l) Agronomy	3	9	18
(m) Chief Scientist (Soil Science or Agronomy)	1	—	—
B. FACULTY OF VETERINARY SCIENCE			
(a) Animal Science	—	3	—
(b) Animal Genetics Breeding	—	1	—
(c) Veterinary Gynaecology	—	—	1
(d) Veterinary Parasitology	—	1	—
(e) Veterinary Physiology	1	—	—
(f) Veterinary Medicine	—	—	1
(g) Poultry Science	—	—	1
C. DOCUMENTATION OFFICER			

Qualifications and scale of pay for the posts

I. Professor cadre in the Faculties of Agriculture and Veterinary Science except in Agril. Engineering

Essential

(i) Ph.D. degree or any other equivalent degree in the subject.

(ii) Experience of atleast 10 years.

Scale of pay

Rs. 1500-60-1800-100-2000-125/2-2500.

II. Associate Professor cadre in the Faculties of Agriculture and Veterinary Science except in Agril. Engineering

Essential

(i) Ph.D. degree or any of the equivalent degree in the subject concerned or should have published work of an equally high standard in addition to Master's degree in the subject.

(ii) Experience of atleast 5 years.

Scale of pay

Rs. 1200-50-1300-60-1900.

III. Assistant Professor cadre in the Faculties of Agriculture and Veterinary Science except in Agril. Engineering.

Essential

(i) A post-graduate degree in the subject concerned.

(ii) Experience of atleast three years.

Note: Ph.D. degree holders in the subject are exempted from three years experience

Scale of pay

Rs. 700-40-1100-50-1600.

IV. Professor cadre in Agricultural Engineering

A Ph.D. degree with seven years distinguished experience or good Master's degree with 10 years distinguished experience.

Scale of pay

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S.P. Varma
REGISTRAR

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Smt. Swarup Kumari Bakshi, Education Minister of Uttar Pradesh, delivering the valedictory address at the seminar on New Education organised by the Agra University.

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Editor: ANJNI KUMAR

Financing of Agricultural Universities

P. S. Lamba*

The agricultural universities in India were started on the pattern of Land Grant Colleges of the United States of America under the recommendations of the Joint Indo-American Team in its report of 1955. The first agricultural university came up at Pant Nagar (Uttar Pradesh) in 1960 and the second at Ludhiana (Punjab) in 1962. Financial assistance for establishing these universities was largely provided by agencies such as USAID, Rockefeller Foundation, Ford Foundation and PL-480 besides the Government of India and the State Government concerned. However, in case of the universities established later on, financial assistance from these American agencies came to be available in a very dwindled degree. Gradually, the agricultural universities had to rely mostly on the resources made available by the Government of India primarily through Indian Council of Agricultural Research and the concerned State Governments in addition to their internal resources.

At present, the main sources of finance for the Agricultural Universities are :

(a) Grants from the State Government.
(b) Grants from Indian Council of Agricultural Research.
c) Grants from other Agencies, e.g. Government of India for centrally sponsored schemes, Cotton Development and Research Association etc.
d) Internal resources.

As regards grants from the State Government, the present system is neither scientific nor satisfactory. This is because the University is not assured of any particular level of grants and every year it has to make out its case for the grant to be sanctioned in the succeeding year. Even after the sanction is given, the grants are subjected to cuts. Besides, difficulties arise in meeting additional requirement needed for grant of Dearness Allowance/Additional Dearness Allowance at rates enhanced by Government from time to time. Similarly, rates of wages have to be enhanced periodically either on the basis of rates fixed under Minimum Wages Act or keeping in view the local rates fixed by the Collectors. There is no built-in provision in the budgetary system to provide additional budgetary allocations for such increases.

The grant is required to be released on the first day of each quarter, but generally completion of formalities for getting the grants released takes 1-2 months in each quarter. In so far as agricultural universities are concerned, the issue was gone into at length by the National Commission on Agri-

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**Vice-Chancellor, Haryana Agricultural University.*

culture and the following recommendations were made :

"Agricultural Universities are established by Acts of State Legislature and are primarily designed to serve the agricultural interests of the States. Each of the latter, therefore, has to provide financial resources for the development and maintenance of its agricultural university. For a well regulated flow of financial support to the University, we recommend the following measures:

(i) The State Government should fix block grants for the University making a practical and realistic assessment of requirements of the funds for efficient management of its programmes for a period of 5 years, giving complete freedom to the University to regulate the expenditure within the grant without any pre-condition.

(ii) An automatic annual increase of 5-10 per cent in block grant should be allowed on the previous years' grant for normal rise in almost all the items of expenditure.

(iii) The State Government should be prepared to give matching grant and to take over the entire liability of educational and research programmes financed initially by the ICAR.

(iv) The ICAR gives financial assistance for the construction of college buildings, laboratory and library buildings and other physical facilities but does not provide any grant for their maintenance. The State Government should provide separate grant for the maintenance of all these facilities after they are completed, following STATE PWD norms.

(v) The State Government should provide sufficient 'Foundation Grant' for agricultural universities. The Foundation Grant will serve as a cushion till funds are released by the State or the ICAR on approved schemes as there is generally a time lag in such releases due to procedural bottlenecks.

(vi) At present, in the plans the financial provision for education and research under the agricultural development programme is inadequate. We recommend that 10-20 per cent of the total plan outlay under the agricultural development programmes should be earmarked in the State budget for agricultural education and research."

These recommendations had been endorsed by the Review Committee on Agricultural Universities headed by Dr. M.S. Randhawa and an extract from the summary of their recommendations, in this behalf is reproduced below:

(i) "The State Governments should give liberal grants both for development and maintenance for the proper growth of agricultural universities. The level of funding for agricultural universities should be ten to twenty per cent of the State Plan budget for agriculture as recommended by the National Commission on Agriculture. The ICAR should examine the non-plan support available to the agricultural universities, before making financial allocation on the Visiting Team's recommendations to ensure that adequate provision is made for committed expenditure for continuing expenditure sanctioned in the preceding plan.

(ii) The Sixth Plan provision for the ICAR for University development should be larger. The level of assistance from the ICAR to each University should be based on its stage of development, availability of infrastructure facilities, etc. The pattern of assistance from the ICAR to the University should be 100% both for old and new items. The ICAR should constitute visiting teams sufficiently in advance of the commencement of the Plan period.

(iii) The principle of block grants (to be reviewed every five years) should be followed by the State Government while releasing grants to the Universities with provision for annual increase of five to ten per cent. Within the block grants the university should have full freedom to regulate expenditure. The State Govt. should also provide a foundation grant of one crore rupees to the University to meet the expenditure on approved activities pending normal release of funds. A separate subhead should be opened in the plan and non-plan documents clearly showing at one place the assistance provided by the State Government to the agricultural University.

(iv) The net income derived from the farm should be retained by the University for meeting non-recurring items of expenditure wherever the State Government does not finance the maintenance expenditure of the farm. In other cases, the income over and above the average income of the farm (based on the last three years average) should be retained by the University.

(v) The deficit between expenditure on approved programme and income from the farm should be met by the State Government instead of limiting maintenance expenditure to the level of the farm income.

(vi) The Market Committees/Agricultural Produce Marketing Boards/Marketing Federations which are making profits should be required to allocate a certain percentage of market fees for giving financial aid to agricultural universities.

(vii) Depreciation Fund should be created by each University out of farm income for replacement of farm and laboratory equipment.

(viii) Procedure for release of grants to universities should be simplified; the grants should be non-lapsable in nature and released every six monthly."

Thus in so far as State Government Grants are concerned, the crux of the above recommendations is as under and action needs to be taken by State Governments accordingly.

(a) Government should adopt the principle of block grants with a inbuilt provision of 5-10% annual increase.

(b) Government should give a foundation grant of Rs. 1 crore to the University to meet the expenditure on approved activities pending normal release of funds. (The State Government of Assam has already implemented this whereas the Tamil Nadu Government gives substantial ways and means of advances).

(c) The net income from the University farm should be allowed to be retained by the Universities for meeting non-recurring items of the expenditure.

(d) Certain percentage of market fees received by Market Committee Agricultural Produce Marketing Boards/Marketing Federations should, in the shape of a cess, be required to be allocated to the universities as financial aid.

(e) Procedure for release of grant to the Universities should be simplified and the grant should be non-lapsable in nature.

In so far as ICAR grants are concerned, the grants for developmental requirements of the universities are assessed by the Visiting Team of ICAR for the plan period and thereafter the grants are released in accordance with the recommendations as approved by the ICAR. In practice, ICAR takes too long to depute the Team and to process its recommendations. Besides, the grants are released on quarterly basis and it takes 1-2 months in every quester to get the grant released. Due to delay in the receipt of grants, particularly those relating to buildings and equipment, these cannot be spent speedily because of the formalities required. These are not allowed to be utilised in the succeeding year without prior approval of ICAR which results in further delays due to which the provision of physical facilities and inputs gets badly delayed. The following recommendations are made in this behalf:

(i) The ICAR should depute its Visiting Team well before the commencement of the plan period and also accord its approval on the basis of the recommendations before the commencement of the plan period. Thereafter, developmental grant should be released six monthly. The 1st six monthly grant should be released equal to half of the envisaged yearly grant without completion of any formalities. (The formalities required as also the audited accounts of the previous grants may be insisted upon on the occasion of 2nd six monthly development grant).

(ii) There is also need to remove anomalies in the existing system of developmental aid. Presently, itemwise ceilings are laid down by the ICAR. In practice, it becomes very difficult to adhere to the ceilings because the recommendations are given for years and at the time of actual construction, the prices generally increase considerably. It should, therefore, be within the powers of the universities to change individual ceilings within the overall aid to be released by the ICAR keeping in view their priority. Of course, the universities will restrict their choice only to item already recommended by the Visiting Team of ICAR.

T. R. I.,

(iii) There should be no insistence on universities meeting 25% share of the cost of any particular building for getting aid from ICAR. State financial support for the university is considerable. Therefore, such restriction on individual buildings is unfair and needs to be removed. It is also necessary that changes in the pattern of grant should not be made retrospectively. To be specific the grants already released for specific purposes and spent as such should not be opened to any subsequent objection.

ICAR also releases grants for individual schemes, Such grants are released six monthly. In this behalf, the following improvements are suggested:

(a) Restriction on re-appropriation of funds by the University for 'TA' should be withdrawn. This is because the reappropriation is done by the University within the overall budget of the scheme, and that too where justified on merits.

(b) ICAR should, on its own, enhance the allocations for Travelling Allowance in research schemes, by 50% in view of heavy increase in Railway/Bus/Air fares and of daily allowance on tour.

(c) Recent revision of scales of non-teaching employees has resulted in considerable increase in House Rent allowance and Contributory Provident Fund. Budgetary allocations for pay, wages and allowances should be suitably increased so that other essential provisions under contingencies may not have to be curtailed to meet these inevitable increases, through reappropriation.

(d) Projects/schemes, which have a life of more than one year should have inbuilt vision for meeting the increase in costs of inputs/wages due to inflation/statutory enhancements.

The grants received from other aid giving agencies form a very small percentage and presently there are no problems in this behalf. However, there is a need to tap this source further, and steps should be taken both at the Union Government and State Government levels to get support for agricultural and other allied activities of the Universities from the following sources:

(a) Agricultural Produce Marketing Board

(b) Seed Corporation

(Contd. on page 290)

Educational Journalism

Inaugural address delivered by Dr. Amrik Singh, Secretary, AIU, at the Second National Seminar on Educational Journalism held at Hyderabad.

I am much obliged to you for having invited me to inaugurate this Seminar. The subject is of such deep interest to me that I would have attended in any case. The organisers however thought that I could as well be asked to inaugurate it. I have genuine pleasure in doing so. My involvement in educational journalism is more than a quarter century old by now and if you will kindly forgive me I would like to begin on an autobiographical note.

It was in the early 50s that I got involved in the teachers' movement in the University of Delhi. The U.G.C. was established in December 1953. Till the establishment of the U.G.C. both the University and the colleges in Delhi were looked after by the Ministry of Education directly. Once the U.G.C. was established, the University wing was transferred to the U.G.C. and the colleges continued to be looked after by the Ministry of Education. As could have been anticipated, this led to a certain difference of approach in the treatment meted out to both. I happened to be Secretary of the Delhi University Teachers' Association at that time. Hardly 10-15% of the total number of teachers belonged to the university departments while the rest belonged to the colleges. The Teachers' Association therefore took up this issue rather vigorously and in about a year's time a simple directive by the then Education Minister Maulana Azad led to the transfer of control of colleges also to the U.G.C. Henceforth both the university and the colleges were treated alike and this is precisely what had been demanded.

I must confess that till then I had not got involved in Education, if I may use the word with a capital E. Though I had been teaching for almost a decade nothing had happened in my own personal experience to interest me in the problems of the profession. My involvement in this campaign led me to seek to understand the background of the decisions being taken by those in power. For instance, though the University Education Commission Report presided over by Dr. S. Radhakrishnan had been submitted a couple of years earlier I had not read it till then. I not only read that report, I also familiarised myself with the various decisions taken by the University of Delhi over the years in regard to its establishment, the manner in which the relationship with colleges had been worked out, the mode of centralisation of postgraduate teaching in the University of Delhi and so many other things connected with the issue. By the end of 1955 it was clear to me that what was happening in the university world was the culmination of decades of development. It was important to understand that and it was only then that one would be able to understand some of the decisions being taken at that time.

There is a reason why I have mentioned the end of 1955. It is because in early 1956 we had convened a meeting of the Executive Committee of the Teachers Association. Apart from me, the only person who turned up to attend the meeting was K.N. Raj. He was then a member of the Executive Committee. While we were waiting for others to come, and none of them eventually came, I outlined to K.N. Raj my plan for bringing out a journal to deal with university problems. I had come to the conclusion that while it might be useful to agitate about certain matters, it was no less important to analyse the problems and seek to understand them in an academic way as well, I had been maturing the project in my mind for some time. He agreed with the idea enthusiastically. As I look back, I feel it was a lucky coincidence that nobody else turned up that day and we were able to discuss this idea for 80-90 minutes without any interruption.

At a subsequent meeting of the Executive Committee I presented the plan to the Committee as well. It was accepted but, as happens in such cases, I was asked to implement it. That was fine, but what it really meant was that I had to plan the project from A to Z, find funds for it and keep it going. Indeed as long as I could keep it going there was no problem. Even when it had to be closed down after about five years, nobody asked as to how it had been run and what had been the problems that I had had to encounter. I could not do anything concrete during the next few months for I was then planning to go abroad. Even when I was away from the country I kept on turning the idea over and over in my mind and gathering whatever information could be helpful to the launching of such a journal.

It was in late 1960 after my visit abroad that I could return to the project. Those were uncertain days in the sense that while the great surge of expansion in higher education had got underway, it was not clear to everyone what was happening. While the UGC had got off to a good start under the dynamic leadership of C.D. Deshmukh, decision-making in that organisation had yet not got formalised into a mould or a pattern. Having been active in the teachers' movement I knew a large number of teachers in Delhi as well as outside and it was helpful to be able to get a feeling of strong and consistent support from them. Nevertheless it seemed important to broaden the area of support.

In this connection I tried to organise a Federation of Teachers' Association of Central Universities. BHU was in a somewhat difficult situation at that time. But Aligarh came along enthusiastically. A Joint Convention was held and the Aligarh University Teachers' Association also contributed a sum of Rs. 1,000 towards the launching of a journal which was given the name of THE JOURNAL OF UNIVERSITY EDUCATION. With another donation of Rs. 1,000 from the Delhi University Teachers' Association the journal was launched. Needless to say, I was designated as the Editor. Even though the capital was only Rs. 2,000, we were able to carry on for five years. I do not wish to say anything about that journal except to say that it did blaze a new trail in educational journalism in the country.

To cut a long story short, I would like to draw some lessons from this experience. The most important of these relate to the problems of finance, circulation etc. While at its peak the Journal of University Education could not be beyond 700-800, the need for a journal which discussed issues on an analytical plane was clear and unmistakeable. In a sense, if I may be permitted to say so, the journal could not have had a bigger circulation. It was operating at a level of analysis which was likely to leave a large number of persons untouched. It attracted the kind of audience which is today attracted by the UGC journal. I have no first-hand information as to the circulation of the U.G.C. journal but I have reason to believe that its paid circulation is not particularly large. There are several reasons for this state of affairs and each one of them requires to be investigated separately and in detail.

The number of persons interested in operating at that analytical level as of today is possibly 5000-6000. This is pure guess work and I have no means of supporting this statement other than a kind of hunch that I have. But I can mention here the basis of my computation.

In the Academic Council of every university there usually are 5-10 people who carefully read the agenda and take lively interest in issues as these are debated. In addition to those who are members of the Academic Council, there are as many people outside its membership who are unable to get into the Academic Council, either because they are too junior or because they have had their term or something like that. But they too are interested in these problems. So if on average there are 20 persons per university who are interested in these problems their total would come to about 3,000. Some universities are so large in size that the number can be easily duplicated or tripled in those cases. One can enlarge this number also somewhat because there may be some others whom one has not taken into account. Then there are persons outside the ranks of teachers also who are interested in these issues. That is why I have placed the number at 5000-6000.

Out of this number, how many would normally speaking subscribe to a journal like this ? My guess is it would be 10% and no more; and that also not very regularly or consistently. In other words, a certain percentage of them would always fail to renew their subscription though there would be always some others taking out new subscriptions.

All this is being said in the context of the number of teachers at the university and college level being approximately 1,75,000. The moment this is said, it should be realised that no journal can ever run unless it is subscribed to by a large number of readers. If it is to be a journal like the UGC journal, it should have a subscription list of 5000-6000. Then alone would it be able to sustain itself and attract some advertising support without which it would be impossible to sustain it. The UGC journal is today financed by the UGC. So probably it does not have to worry about its balance-sheet. But any kind of commercial venture or even a sponsored venture has to be commercial in the ultimate analysis. It would just not work if this much circulation were not to be there.

This brings us to the principal difficulty that any educational journal in India has to face. But simply it is this. Not enough people are interested to subscribing to it. This is a comment on the academic community in India. Those who are intellectually alert and interested are not willing to stand up and be counted. The majority however consists of those who are apathetic. When the number of these persons who are apathetic is more than 95%, as seems to be the case, anyone who ventures to bring out a journal is embarking upon an enterprise which is either foredoomed to failure or can be kept going only at the cost of great personal sacrifice.

While I have been talking about the circulation and financial viability of the journal at quite some length, there is another important issue also to be raised here. A journal of ideas and analysis is by its very nature something that appeals to a limited number of persons. If its potential readership is not more than 5000-6000 and only 10% or so out of that clientele would subscribe to it, clearly one has to adopt a different approach in order to reach a wider section of the reading public. If not many people are interested in views, may be they can be made to take interest in news. And so to news, a lot of it is being generated all the time in every single institution of higher education.

Not many of us seem to realise that outside the defence forces, it is education which employs the largest number of persons. There are approximately two million persons working at the primary level, more than half a million at the secondary level and about 1,75,000 at the tertiary level. Ideally speaking, one should be able to bring both the primary and the secondary levels of education also into the pale of discussion. Even if that cannot be done the tertiary sector is by itself large enough to be a world in itself. These persons are distributed over approximately 5,000 institutions that include both universities and colleges. In addition, there is a fairly large sector of research institutions. The number also runs to several hundreds if those working in industry are also included.

As a mattter of fact, if the sector of industrial research were not to be excluded, the number of persons involved would be in the neighbourhood of 3,00,000. The problems of university education and those of scientific and industrial research are not altogether dissimilar. There is a good deal that is common to both and properly speaking any kind of a journal which seeks to cover both these areas of activity would have a large potential clientele.

It was of news that we were talking. With so many thousands of institutions something is happening every minute somewhere or the other. The news thus generated has to be collected, sifted, classified and made presentable from the point of view of those who can be interested in it. Nobody has given enlightened attention to this sector of activity. Had the newspaper industry paid adequate attention to it, it would have uncovered a vast beehive of activity which could have been put even to commercial use.

On one occasion there was some discussion between me and one of the chain newspapers in the country to go into the area of education but nothing came out of it. On another occasion I tried to interest one of the leading industrial houses in the country in this neglected sector of activity. My proposal was to establish a Trust and get support for it from that industrial house. This Trust was to launch a fortnightly paper and present both news and views to the reading public. I am sorry to say that eventually I was unable to interest these people in the proposal. I am still of the opinion that if substantial and consistent financial support were to be forthcoming for a period of 2-3 years, a venture like this can succeed.

There is yet another aspect of gathering of news on which attention must be focussed. One knows of a couple of publications in the country which have tried to give news of activities of various institutions. They have had limited success however. Newsgathering, if I may say so, is the job of a professional. When any kind of a bias is introduced into it, it creates problems of credibility. This is precisely what has happened in the few cases that I have in mind. Some of these journals have had a certain degree of success. Precisely because they were projecting news of various institutions they were able to arouse considerable reader interest. But because the news were not always free of bias these journals got into certain problems. The editors discovered for themselves that these problems arose from the fact that those who were supplying them news had quite often an axe to grind. They therefore were projecting news from their point of view. But if news gathering were to be done on a professional basis and the coverage were not to be patchy but fairly consistent as well as comprehensive, I have no doubt in my mind that such a journal, even if it is not a weekly, would make a place for itself.

News is something in which everyone is interested. News is something in which even those who are on the whole apathetic to academic or professional matters can be made to take interest. News is something which is social in character. Therefore it puts us in touch with fellow human beings, in this case with fellow professionals. It therefore has the effect of knitting us together. It would be difficult to say that this feeling of being knit together can replace the professional organisations in a formal way. But it is the next best thing. In any case there already exists a considerable amount of fellow feeling amongst academics all over the country. If all this could be projected on a common plane and through the medium of one or two more journals it would strengthen it further. From that point of view, it is important that educational journalism should grow in the country.

At this stage it is also important to refer to another aspect of educational journalism. Let us assume that we have a couple of all-India journals which meet the requirements as visualised above. Their functioning however would not be so easy because decision-making in respect of education in general and more so in respect of higher education is not as public as it ought to be. In the field of higher education the UGC is without question the most important agency at the all-India level. Though it brings out one or two bulletins in a year, and this practice is relatively recent, that is all the information that the UGC shares with the academic community in the country. And yet there is so much happening there that in place of two issues of the bulletin in a year, they could easily bring out two issues a month. The information is not only with regard to grants etc., there are all kinds of other issues which are being considered. There are scores of committees and panels which are meeting every now and then. In terms of the number of meetings one could easily say that the UGC must be playing host to approximately 200 meetings a year.

Where do all these reports go? Most often they go into the archives. Their findings and recommendations are hardly shared with the community at large. One is not interested so much in how much was given to which institution. What one is really interested in is why it was given? Behind every decision there is a certain process of decision-making. Unless that process of decision-making is public and is shared with the wider academic community; how does that community get involved in what is happening? What is more, how does the community get educated in regard to what is happening? A situation where decisions are made in the privacy of cammittee rooms and handed down to those who are more or less in the role of the beneficiaries of those decisions creates a kind of atmosphere which is not only non-academic; I would go to the extent of calling it anti-academic. This is because it encourages people to go and pay court to those who are vested with the powers of decision-making. Since those decisions are not made publicly there is always room for manoeuvring and manipulation. This is not being critical but this is certainly being candid.

What applies to the UGC equally applies to universities and other institutions of higher learning. Quite often there are good reasons for being confidential about certain things but after a decision has been made there is no reason why it should continue to be confidential. Indeed the process of decision-making should be made public so that those who are interested can judge for themselves whether the decision was arrived at properly or otherwise. Education as an enterprise can be best conducted when there is a large measure of participation. Participation however does not mean that there is no one responsible for decision-making. Decisions have to be made by those who are vested with the right to do so. But it is of some significance that decisions are made in the open and within the knowledge of the academic community as a whole.

I quite realise the difficulties in this regard. In a number of institutions there are pressures which are of a self-seeking and self-serving kind. Those who oppose a particular decision may not be necessarily doing it because those decisions are wrong. Quite often they oppose them because they themselves or their friends stand to lose by their decisions. Nothing is easier in that situation than to adopt the posture of injured innocence and talk in terms of high academic principles. I do not wish to say anything more about it except to indicate that I am aware of the difficulties of decision-making in public gaze. Nevertheless I am in favour of information being widely disseminated and shared with the academic community. On balance I regard it as a constructive and wholesome approach to adopt.

What has been said about the UGC and the universities is equally applicable to other institutions like the Indian Council of Social Science Research, the Indian Council of Historical Research, the Bar Council of India, the Indian Council of Medical Research, the Council of Scientific and Industrial Research and various other similar organisations. The mode of decision making in almost each one of them is the same. To distinguish one from the other would be individious and misleading. The intention therefore is not to find fault with any one of them. Rather it is to call attention to the culture in which each one of them operates.

One could argue and say that what these various bodies concerned with higher education are doing is not particularly different from what is being done in the other branches of the government. That may be so but then it amounts to overlooking the crucial difference between the composition and outlook of the academic community and the rest of the population. In the academic world, more or less as a part of its normal functioning, decisions have to be taken not by a few individuals only but with the participation of a large number of persons. If decisions are taken without reference to them, one of the two things can happen. Either the decisions will be bureaucratic in character and to that extent not entirely appropriate to the nature of academic enterprise. Or these decisions will be manipulated by some individuals to suit their limited and parochial interests. It is unsatisfactory in either case.

One could go even further and say that the weakness or non-existence (whichever we prefer) of an intellectual community in the country is to some extent linked with the fact that no systematic attemp has been made to encourage participation in decision making. There is the culture of decision making within the government. It does not imply participation by those who are affected by the decisions thus made. When the same kind of culture is carried over to the universities and other decision making bodies concerned with higher education, the result is what we see. If we have to develop our teaching cadres in the way they ought to be developed, it is important that they are given a sense of participation. Participation would mean wider sharing of information both about the process of decision making and the implementation of these decisions. This would create a kind of awareness in the academic community which is sadly lacking today. Educational journalism has in this sense an exceedingly crucial role to play.

It should be clear by now why decision-making in full public gaze is both important and desirable. If the reasons advanced here are accepted, educational journalism requires to be fastered as well as promoted. It is through the medium of reporting whether by newspaper or by radio or by any other means that the process of decision-making can be analysed. In a sense this indepth treatment is being extended to political life by the media. Newspapers will tell us who met whom, what was discussed or not discussed, what are the respective points of view of the various characters involved in the drama and so on. This is not to suggest that what happens in the field of education is as important as what happens in the political field. I would not like to suggest anything of this kind. But why should decisions and goings-on in education not be of the same level of interest to those who are involved in education? After all what happens at that decision-making level affects each one of us, whether we are teachers or students or otherwise involved in education. My plea therefore is for treating both the process of decision-making and the actual decisions with a certain degree of professional thoroughness as well as a sense of responsibility. As stated earlier, the number of persons involved in education is next only to that of defence. In absolute terms the number is very large. If most of them are not interested in problems of education, you can draw your own conclusions. Mine are much too unflattering to be put in words here.

At the present moment it would be too much to claim that we have anything like proper educational journalism. We have a few magazines and journals coming out. Each one of them has limited coverage as well as limited circulation. There is not even a single journal which can claim to function in the professional way in which such journals ought to be run. That there is no all-India journal and that everything is limited as well as parochial is much too evident to need any comment. In plain words, there is an enormous amount of work to be done.

I would like to qualify this statement somewhat-through. At the State-level, the situation is not so bad. In a number of States, there is considerable activity at the grass roots level and there is an impressive degree of rapport between the readers and the journals published. In terms of contents as well as presentation, however, there is a good deal of leeway yet to be made up.

But the fact remains that so far we have not been able to throw up either an individual or an organisation which should have handled this task with the degree of professional thoroughness that is required. In my judgement, what is required is some initial capital and some measure of professional competence. Because of the size of the educational operation in the country there is goodly amount of advertising support available. Only it is being diffused all over. If it could be focussed at one point and in the interest of a journal or two, the results are likely to surprise most sceptics.

However there is no getting away from the fact that educational journalism can succeed to the extent that the academic community will support such enterprises. Unless the academic community learns to be aware of its powers, to be proud of itself and to project an image that is confident and constructive the situation will continue to be as depressing as it is today. It is on this somewhat cautions note that I wish to conclude. I only hope that in the course of our deliberations in the next two days we would be able to generate a certain amount of enthusiasm as well as prepare a plan of action. With these words, I invite you to join in the deliberation of the seminar. □

Financing of Agricultural Universities

(*Contd. from page 285*)

(c) Agro-Industries Corporation
(d) Fertilizers Corporation
(e) Dairy Development Corporation
(f) Poultry Corporation
(g) Indian Farmers Fertilizers Cooperative Ltd.
(h) State Bank of India and Nationalized Bank .

The aid could be for financing Research Projects, or fellowships/scholarships or in the shape of adhoc grants for various University activities.

As regards internal resources, since Universities are primarily non-commercial institutions, there is not much scope for increase in income. Yet the following needs to be considered:

(i) Comptroller should be associated, where not already done, for fixation of rates for university produce and services rendered by the University. While determining rates of seed produced by the University, care should be taken to ensure that the rates are so fixed that people do not consume these for domestic use.

(ii) The University should consider starting consultancy service and charge for the same for advice in regard to setting up of poultry/animal farm and other matters connected therewith.

(iii) Working of the University Farm, excluding purely research testing plots, should, as far as possible, be oriented on commercial lines. For this purpose, performance budgeting should be introduced indicating targets of production for each kind of crop and the comparison of actual yield with the same.

(iv) Last but not the least, it is of the utmost importance to realise the value of economy at all levels. If every employee of the University realizes the importance of austerity and economy and appreciates the dignity of labour, he would take particular care to shun waste of all kinds by using stationary and electricity, frugally, maintaining machinery and spare parts better, avoiding duplicate purchase of machinery and equipment, restricting touring/use of University vehicles and minimizing official entertainments. As a result of these measures, better output will be ensured from the limited resources available for financing the University.

With the improvements in the financing of agricultural universities through the procedures suggested above in regard to release of aid by State Govts. and ICAR, as also taking of steps by the agricultural universities to tap their internal resources, the financial working of the universities shall improve further thereby facilitating a more efficient discharge of their statutory functions regarding teaching, research and extension education. The agricultural and allied activities shall also get a fillip when the efforts of the universities to get financial support from institutions directly or indirectly concerned with agriculture bear fruit.

Though the scope of this paper is primarily related to the working of agricultural universities, yet the principles mentioned herein may be of use in traditional universities as well in streamlining their existing procedures for release of grants and also improving their internal financial resources. □

Role of AICTE in the Development of Technical Education

The All India Council for Technical Education ever since its establishment in the year 1946 has played a very significant role in the development of Technical Education in the country. Since the establishment of the Council, there has been a phenomenal expansion of the facilities for Technical Education. While in 1947-48, there were only 53 polytechnics admitting annually 3670 students to diploma courses in engineering, and only 38 engineering colleges and technological institutions admitting 2940 students for first degree courses, there are adequate facilities today to admit annually 50,000 students for diploma level courses in 350 polytechnics, and 25,000 students for the first degree courses in 150 engineering institutions. Post-graduate education in engineering and technology which were practically non-existent when the Council was established, has now got a well-established base with facilities existing in 74 institutions for Master's degree programmes with an annual intake capacity of about 6,000 students and in 63 institutions for doctoral work with an annual intake of about 500. The Council has also been responsible for the establishment of the five Indian Institutes of Technology and the development of a number of other specialised institutions in the fields of teacher education, management education, industrial engineering, foundry and forge technology, plannng and architecture etc.

In the development of Technical Education, each Five-Year Plan has been characterised by an emphasis on some specific aspects of immediate relevance. Up to the end of the Third Plan, the main emphasis was on physical expansion and infrastructure development. The Fourth and Fifth Plans were characterised by an attempt on the consolidation of facilities already created and on the improvement of quality and standards of Technical Education. The proposals for the Sixth Plan have been formulated with the basic operational objectives of (a) consolidation, (b) optimum utilisation of the existing facilities, (c) expansion of facilities in the areas where weaknesses exist, (d) creation of infrastructure in areas of emerging technologies, (e) improvement of quality and standards of education, and (f) furtherance of national efforts to develop and apply science and technology as an instrument of country's socio-economic progress.

While there has been considerable effort in the last decade in consolidating the facilities of the existing institutions, both at the diploma and the degree levels, the situation in many institutions continues to be dismal. Changing emphasis on course content and laboratory instruction and rapid changes in technology make it imperative to keep a continual watch on the updating of the infrastructural facilities in our institutions, and for the modernisation of the laboratories. Conscious effort will have to be made by the States and the Centre to ensure that the education and training of our students continue to remain relevant to the changing technological scene in the country and not become outdated or obsolete.

Equally important is the development of facilities for education and training where weeknesses exist today in our system of Technical Education. The areas where gaps have already been identified include computer science, electronics, maintenance engineering, instrumentation, product development, bio-engineering, management sciences particularly for the small scale industry and rural sector and management of scientific and technical institutions. Necessary plan provision has been made under the Central Sector to fill these gaps. Similar steps will also have to be taken by the different States to supplement and complement the efforts that may thus be made under the Central Sector.

One of the other crucial areas where major effort would be required during the Sixth Plan period is the identification of new emerging technologies vital to our country's development and creation of necessary infrastructure for education, training and research in the fields thus identified. For instance, the advent of the microprocessor, i.e., "the Computer on a Chip" has already revolutionised the Industrial Scene in the developed countries and its impact has started being felt in our country as well. Having regard to the importance of this new emerging technology, we can ill-offord to lag behind in this important area, and must create facilities for education and training, both for the teachers and the students. Similarly, action will have to be taken to move with the time in other areas of emerging technologies, many of which have already been identified by the Review Committee of Post-Graduate Education and Research in Engineering and Technology. Necessary Plan provision has been made to create facilities in some of these crucial areas relevant and important for the development of Technical Education, and the technological capability of the nation.

While consolidation, expansion of facilities in the areas where weaknesses exist and creation of infrastructure in areas of emerging technologies are important, the improvement of quality and standard of education continues to be our major concern. In the year 1970, on the recommendations of the Council, the Central Government instituted a scheme of Quality Improvement Programme with particular reference to development of faculty and the creation of national Centres for Curriculum Development.

In a Seminar organised recently by the Indian Society for Technical Education at the instance of the Ministry, all the ongoing quality improvement programmes were analysed in detail and suitable recommendations were made to tone up these activities to meet our aspirations of placing our system of Technical Education on a very sound footing. Under the provision made for new programmes of Quality Improvement in the Sixth Plan, a scheme has been formulated to foster the programme of overall institutional development by establishing a network between our highly developed institutions and the less developed ones in order to make use of the expertise generated in our own country. Other new programmes are also in the process of formulation. It is very important that efforts of the Ministry of Education at the Centre must be supplemented by those of the different States and other organisations because in the ultimate analysis it is not the numbers but the quality of technical personnel coming out of our technical institutions that will make the real mark. The Council has already recommended a number of supplementary measures for improving the quality and standards of Technical Education in the country, and these recommendations have been communicated to the various State Governments and the Union Territories.

The development of effective methodologies in the application of Science & Technology, provision has been made under the Central sector in the Sixth Five-Year Plan for an effective interaction of technical institutions with the society. The scheme of Community Polytechnics to interact with the environments and to promote transfer of technology to the rural areas has already been instituted in the country in the selected polytechnics which are 35 in number at present. Equally important would be similar involvement of the engineering colleges in research on live problems of the community, development of Appropriate Technology and for giving background support to the community polytechnics to make their interaction much more meaningful and effective. The application of Science and Technology for rapid economic development, generation of employment, transfer of technology, operational research on problems of rural development and harnessing of natural resources for augmenting the supply of energy are most vital for the nation at this juncture and, therefore, a great challenge to our technical institutions.

The expansion of facilities for Technical Education, both by way of establishing new institutions and expanding the facilities in the existing ones, is also a matter which needs urgent consideration. While the All India Council in its last meeting had recommended that the present intake capacity at all levels, i.e. diploma, degree and postgraduate is adequate for the next decade, there is increasing pressure from a number of States for establishment of new Institutions, increasing the present intake capacity and introducing new courses in a number of areas. The Council at its last meeting had recommended that a National Manpower Information System should be established for the storage, updating, retrieval and analysis of manpower information to assess Technical Education planning. The Council had also recommended that the State Directorates of Technical Education should have organs dealing with Manpower assessment besides planning, coordination, controlling, monitoring and evaluation of educational programmes and that the Directorates should be reorganised to enable them to perform these functions effectively. As regards National Manpower Information System, the scheme has already been included under the Central Sector in the Sixth Five-Year Plan and the matter is being processed further in consultation with the Planning Commission. We hope the States have taken steps for strengthening their machinery for assessing the manpower requirements, so that serious imbalances do not occur in the future between the supply and the demand for technical manpower. **[Excerpts from the inaugural address delivered by Shri S.B. Chavan, Union Education Minister, at the 25th meeting of the All-India Council for Technical Education.]**

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CAMPUS NEWS

National seminar on restructuring of courses

A three-day national seminar on restructuring of courses at the first degree level was organised by Sri Venkateswara College, Suryapet, with the assisance of the University Grants Commission. Experts from various professional bodies like universities, extension services, industry, training institutes and professionals in other related fields from all over India were brought together to interact for a common interest. The seminar was inaugurated by Sri Swami Ranganathananda, Chief of Sri Ramakrishna Mutt, Hyderabad. In his inaugural address, Sri Ranganathananda emphasized the need to relate education to life's situations so as to make the student a useful citizen capable of utilizing his knowledge for the upliftment of the community.

Prof. G. Ram Reddy, Vice-Chancellor, Osmania University who presided over the inaugural session, pleaded for switching over from the present theory-oriented education in colleges and universities to skill-oriented education. He also exhorted the teachers and students to respond to the real needs of the community by involving themselves in linking education to work-experience.

Dr T.V. Narayana, former member of APPSC, Chairman of the college committee and Chairman of the seminar committee in his key-note address, outlined the inadequacies of the educational system that exists in our country today and requested the participants to spell out the dynamics, mechanics, economics and utilitarian aspects with emphasis on development of self-employable skills that can effectively result from the restructured courses.

The seminar was divided into six groups and the following subjects were discussed: 1. Electronics and Applied Electrical Engineering; 2. Ctruction Technology; 3. Agriculture, ons-Poultry science, Dairy science, Forestry, Fisheries, Food and Catering Technology and Ground Water Technology; 4. Biosciences and Pharmaceuticals; 5. Chemical Technology; and 6. Social Sciences. After a considerable amount of discussion the following recommendations were made :

1. Syllabi in various institutions catering to same subjects should be similar as far as possible. This should be specially so at the university level i.e. at 1st degree level.

2. In various subjects, parts of the syllabus should deal with exposure to management techniques including inputs for training in entrepreneurship.

3. There should be some exposure to communication skills in the form of report writing, preparation of viable schemes and project reports, at the end of the courses.

4. As these courses are aimed at filling the gap between the training offered by I.T.I.'s, Polytechnics and specialised professional colleges, the students have to be instructed in necessary skills so that they can be put in the engineering trades.

5. Periodical evaluation has to be done for the courses suggested and taken up in the initial stages,

6. A refresher course and exposure of faculty members and students to industry, various types of employment agencies and opportunities for self-employment are necessary for the success of the restructured courses.

7. Periodical visits to and interaction between various institutions in which these courses are introduced should be arranged.

Tata for all-out bid to raise living standard

Mr J.R.D. Tata, called for a concerted bid to raise the standard of living of Indians in the next 50 years and his formula for it was accelerating the rate of growth of GNP and decelarating the population growth. He urged the Government to launch an all-out effort to contain the rapid population growth, forecasting disaster if this was not done. He advocated increase in monetary incentives upto Rs. 5,000 per vasectomy of tubectomy to prevent births. To achieve an average growth rate of 6 per cent during the next 50 years, which Mr Tata thought was within the scope of India, it was necessary to have better management and a lower capital-output ratio. Only with a combination of efforts on these fronts could India hope to increase its per capita income by 12.5 per cent by 20.30. Mr Tata felt that foreign investment and knowhow should be welcomed. Mr Tata blamed the successive Indian governments and rulers for not devoting enough attention to an all-round economic growth of the country. The rural sector had been neglected under the mistaken impression that boosting industry was more important and there was failure to curb the rate of population growth.

Referring to his efforts made for preparing Plan for economic growth of India after independence, Mr Tata said its target of doubling the per capita income in 15 years by trebling the Gross National Product had not been reached. The main reasons for such a poor record of economic performance were the magnitude of the problems occupying the minds of the Government after independence but "history cannot absolve them (the first Government) and their successors of responsibility for the failure to achieve in subsequent decades a significant improvement in the living standards of our people". Mr Tata was categorical in his support of foreign investment in India, pointing out that there was little risk and much gain in its participation in the country's journey to self-sufficiency. The Government could keep the investors under its control and all the assets and jobs created would belong to the country.

Jha calls to end overcrowding in universities

Mr L.K. Jha, Chairman of the Economic Administration Reforms Commission has called for an end to overcrowding in universities. An atmosphere should be created in which only those interested in the subjects take up university courses and not merely for a degree to get a job. He was addressing a two-day conference of Manpower Data Producers and Users in New Delhi. The conference has been jointly organized by the Institute of Applied Manpower Research and the Planning Commission. Mr Jha suggested that a vocational paper should be introduced as a compulsory part of the syllabus. The paper should have links with the subject which the candidate offers for his degree. He said primary schools in rural areas should not follow the time schedule and programme of holidays, which come down from the British days. The hours of schooling should be such that children who have to help their parents in their farm or in any other way can continue to do so. The school syllabus should have a practical paper covering training in a locally practised craft.

Mr Jha pointed out that while everyone agreed about the seriousness of the unemployment problem, no thought was being given to it. For instance, he said, when an investment proposal came to the Government, it got examined from every conceivable angle, but the employment potential of the project was rarely given the kind of weight it deserved. None of the economic departments and ministries, which examine such proposals have employment in the list of business allocated to them. The Ministry of Labour, which is formally concerned with unemployment, does not get a say in the evaluation of the proposal. He wanted expansion of facilities for specialized training as employment outlets for them extended beyond the shores of the country. Even from a purely economic point of view, the expansion of technical training facilities would pay good dividends.

Seminar on South Asian co-operation held at Hyderabad

A three-day seminar on South Asian Regional Co-operation, jointly sponsored by the Institute of Asian Studies, Osmania University, University of Hyderabad and the Steering Committee for Research on International Economic Relations, New Delhi was held at Hyderabad recently.

Mr Bhattam Sreerama Murthy Minister for Cultural Affairs, gave the inaugural address. Delegates from Afghanistan, Pakistan. Nepal, Bhutan, Bangladesh, Burma, Sri Lanka, Maldives and India attended the seminar and discussed economic co-operation, scientific and technical co-operation and cultural exchanges among the countries of the region. Mr Y.B. Chavan, Mr V.R. Bhagat, Mr Dinesh Singh, former Union Ministers, and a number of other personalities also attended the seminar.

Mr V.B. Raju, MP, President of the Institute of Asian Studies said the objective of the seminar was to highlight the need for greater co-operation and understanding among the countries of the region and to co-ordinate and supplement the efforts that were being made by various institutions and individuals in all the countries of the region.

New guidelines on teachers re-employment

A decision to modify the existing guidelines for re-employment of teachers and principals in Delhi University colleges was taken at a meeting of the executive council of the university recently. According to the revised guidelines, the re-employment proposals will be initiated by the authorities themselves six months before the date of retirement. Both, re-employment as well as refusal for re-employment will need the approval of the Vice-Chancellor. The university ordinance will also be accordingly amended by the authorities. The decision to modify the existing guidelines in this regard was taken by the DU executive council in view of the alleged discrimination being shown in some cases of re-employment by the college government bodies.

Majority of States adopt 10 plus system

Mr S.B. Chavan, Minister for Education told the Rajya Sabha that Fifteen States and eight Union Territories have adopted the "10 plus two plus three" pattern of education. The states are Andhra Pradesh, Assam, Bihar, Gujarat, Jammu and Kashmir, Karnataka, Kerala. Maharashtra, Manipur, Nagaland, Orissa, Sikkim, Tamil Nadu, Tripura and West Bengal. The Union Territories are Andaman and Nicobar Islands, Arunachal Pradesh, Chandigarh, Dadra and Nagar Haveli, Delhi, Goa, Daman and Diu, Lakshadweep and Pondicherry. The Union Territory of Mizoram has decided to adopt this pattern from the new academic session.

Bhojpuri to be introduced in Magadh

Teaching of Bhojpuri language in Magadh University will be introduced soon. The State Education Minister, Dr Prabhunath said in Patna that Bhojpuri teaching has already been introduced in Bihar University recently.

News from Agril. Varsities

Correspondence courses for farmers

Haryana Agricultural University has a plan to start correspondence courses for farmers of Haryana soon. The idea behind the project is to take the latest agricultural technology to the doorsteps of farmers. Most of the literate young farmers are receptive to learning new farming techniques, but they do not have the time to join various training courses run by the university. According to the draft plan prepared by HAU training and extension specialists, these courses will impart both theoretical and practical knowledge to all categories of farmers. The courses will cover all subjects relating to crop animal and farm management. The experts hope to increase farm production considerably through these courses.

A few courses have been designed exclusively for rural women. They will cover all aspects of home management. Rural women will be invited to the university campus for participating in personal contact programmes.

The plan is likely to be implemented in phases. In the first phase the university proposes to start courses in farm machinery, agronomy and dairy farming. Four more courses will be covered in the second phase. These are: horticulture, crop protection, poultry farming and scientific home management.

To encourage farmers to join the courses, no tuition fee will be charged. The students will have to pay only Rs 10 as registration fee. The programme is expected to bring a large number of farmers in direct contact with the farm scientists. This will help the scientists get a first hand knowledge of the difficulties faced by the farmers. Such a massive feed-back is presently lacking. The feedback is perhaps the most authentic way of knowing the success of research work.

HAU organises workshop for animal husbandry officers

Addressing the Haryana State Animal Husbandry Officers Workshop organised at Haryana Agricultural University, Mr Shiv Ram Verma, Minister for Animal Husbandry, emphasised the need of more frequent and closer contact between the scientists and the field workers. He said that as much emphasis on the prevention of diseases in animals should be laid as on the cure of the diseases. Mr Verma further said that there was an urgent need of transferring latest technology to the animal breeders before the technology becomes outdated. The sooner the research reaches the farmers the more confidence he would have in the field workers as well as in the scientists.

In his presidential address, Dr P.S. Lamba, Vice-Chancellor, Haryana Agricultural University, said that the Government should evolve some methods to expose the field workers to the latest researches by organising refresher courses, training and workshops. He said that one and a half times more yield in milk could be obtained if systematic rearing of animals is adopted. He said that the allotment made for the livestock development in the past was much lower than that which has been made for various agricultural programmes. Thus only one in 15 of the beneficiaries was given help for livestock development in the 4th plan. However, he said the situation has slightly improved now but it is not commensurate with the need of the day.

Rao deplores criticism of farm research work

Rao Birendra Singh, Union Agricultural Minister, blamed the agricultural scientists for instigating criticism of the agricultural research work done in the country. He said that these persons did not realise the harm they were doing to themselves and to their institutions. Over 100 agricultural scientists, research workers and experts received awards from him in New Delhi for their outstanding contribution in different fields of agriculture. He said that while the work done by agricultural scientists in India earned praise from the advanced countries, the criticism came from the so-called educated and intellectuals in the country. The Minister also released the first volume of History of agriculture in India written by Dr M.S. Randhawa, a renowned agricultural scientist and educationist. The volume covers the period up to the 12th century with evidence from archaeology, rock paintings, carvings and inscriptions used to trace the development of agriculture.

Negi suggests common approach to farm problems

Dr L.S. Negi, former Vice-Chancellor of Assam Agricultural University, has suggested that the developing Asian countries should form an organisation to solve their economic and agricultural problems through mutual cooperation. Speaking at the annual function of the College of Agriculture of Haryana Agricultural University, Dr Negi said that India, Burma, Bhutan, Pakistan, Sri Lanka and Nepal should have a common approach to their agricultural problems. He said that he was in favour of technocrats heading the institutes of higher learning in the country.

In his presidential address Dr P.S. Lamba, Vice-Chancellor of Haryana Agricultural University, said that food production in the country would have to be raised four times by the end of the century. Dr D.S. Gupta, Dean of the College of Agriculture, listed the achievements of the college during last year.

Fisheries college at Dholi

The Vice-Chancellor of Rajendra Agricultural University, Dr K.K. Jha, said in Muzaffarpur that a fisheries college would be opened soon at Dholi during the current financial year. This would be the first fisheries college in Bihar which is expected to modernise fish production programme in the State in general and north Bihar in particular. Now that the agricultural college is being shifted to Pusa, Dholi College will have one fisheries college and various research wings of farm science only. He disclosed that the university has proposed to the state government to open an engineering college for water management.

News from UGC

UGC move for research on reservation

The University Grants Commission has decided to award five research associateships for in-depth studies on specific problems connected with national integration. The UGC has asked the university authorities and those of degree colleges to send their proposals for the purpose. Apart from the causes that lead to communal tension, the recent caste war in certain areas of the country and the implications of reservation in admissions and promotions at various levels could form part of the studies. How far the benefits accruing from special treatment have remained confined to certain sections within backward groups, may also be studied in so far as they accentuate the class conflicts instead of removing it.

UGC plans big computer programme

Introduction of a degree course in industrial engineering at Perarignar Anna University of Technology, Madras, has been approved by the University Grants Commission. The approval is, however, subject to the condition that the State Government should take over the responsibility of meeting the expenditure of a recurring nature after March 1985, when the UGC assistance will cease. The proposal was earlier examined by an expert committee of the All India Board of Undergraduate Studies in Engineering and Technology which had suggested that the intake for the course should be restricted to 10 students to start with. The committee also had laid stress on close collaboration between the industry and the college.

The UGC has also approved a plan which provides for every university in the country to have access to a computer, if not having one of its own, by the end of the Sixth Plan period. A comprehensive training programme prepared by the standing committee of the UGC to meet the emerging needs of computer manpower at different levels and in the various sectors of the economy has also been approved. Under the programme, steps will be initiated for the opening, as well as expansion of B.Tech. and M.Tech. courses and starting a new programme of Master of Computer Applications (MCA) in all the four regions. Nineteen universities will be involved in these manpower training programmes. These will be supplemented by short-term courses and continuing education programmes.

UGC grant for Gandhian studies

Mr S.B. Chavan, Union Education Minister, said in Rajya Sabha that seven universities in the country offer diploma courses in Gandhian studies. The University Grants Commission has provided assistance to Bhagalpur, Madurai Kamaraj and Sri Venkateswara universities for this purpose. The Commission has also approved one post each of Reader and Lecturer and Rs. 25,000 for books and journals for Madurai Kamaraj University, one post of lecturer and Rs. 10,000 each for books and journals and visiting lecturers for Bhagalpur University and one post of lecturer for Sri Venkateswara University to further strengthen Gandhian Studies.

Universities to have access to computers

The University Grants Commission has set apart funds in its Sixth Plan for computer facilities and computer education. The Department of Electronics of the Government of India will also share a part of the expenditure and will coordinate with the UGC. Thirty universities in the country have computer centres which are supported by the Commission. Every universite in the country will now by enabled to have access to a computer.

Science & Technology

Environmental information system to be set up

The Department of Environment is preparing a report highlighting major environmental factors that must be considered in all development projects to be taken up in the Ganga and Brahmaputra river basins during the next 40 to 45 years. According to the first annual report of the Department of Environment set up in November last year, a national environmental information system is also proposed to be created. The concept has been worked out in detail by a working group. The report said the National Committee on Environment Planning and Cooperation (NCEPC) had in a review of the State environmental committees found that they needed strengthening. It had formulated proposals for providing catalytic support to these committees. NCEPC is a high-level advisory body to the Government entrusted with the task of integrating environmental aspects into planning for economic development. NCEPC and the department's Environment Research Committee have jointly prepared a status report on reclamation and restoration of land environmentally degraded by mining activities. It has also formulated guidelines for environmentally sound conduct of mining operations. A project for the investigation of the long-term environmental and ecological impact of multipurpose river velley schemes in the Western Ghats in Kerala is currently under way. The ecological impact of the Beas-Sutlej link project will also be studied by a working group constituted by NCEPC.

Scientists succeed in making paper from hyacinth

Indian scientists have succeeded in making paper from water hyacinth, a weed that pollutes the waterways. A pilot plant at the Regional Research Laboratory in Hyderabad is now making different kinds of paper and paper boards from leaves of water hyacinth harvested from the city lakes. Water hyacinth is a problem weed in most third-world countries in the tropics. One of the fast-growing weeds, it grows on clean as well as polluted water. The weed which floats on water chokes irrigation canals, impedes navigation and hydro-power generation, besides offering a breeding ground for insects. By converting the weed into paper, scientists have not only found a practical solution to the weed nuisance but also introduced a new biomass source to the paper industry that currently depends on forest trees.

Except for Gujarat, Punjab and Kashmir, all states are infested with water hyacinth. A hectare of water surface yields 50 tonnes of water hyacinth and it is currently growing over many hectares in India. The technology for converting the weed into paper was developed by the laboratory under an inter-country programme initiated by the Commonwealth Science Council two years ago. India has offered to share the know-how with Malaysia, Sri Lanka and Bangladesh—the other collaborating countries. The project is financed by a $200,000 grant from the United Nations environment programme. Under this project, Sri Lanka was studying the control aspect of the weed and Bangladesh biogas production from water hyacinth. Scientists say that the paper produced from water hyacinth will be cheaper as the raw material is available free, except for the cost of collecting it. Meanwhile, the Institute of Fisheries Technology in Cochin has developed a mechanical weed harvester that costs Rs 10,000 It can clear 1.5 hectares a day at a cost of Rs. 50.

Awards & Medals

Awards for 13 Hindi book writers

The Government of India has selected 13 books of Hindi writers of non-Hindi speaking areas for awards for the year 1979-80. Each award carries a cash prize of Rs 1500. The awards are given by the Ministry of Education to encourage literary works in Hindi by writers of non-Hindi-speaking areas whose mother-tongue is not Hindi.

The books selected for the prizes are: Mujhh Kehna Hai Sudhakar Kalavade (Gujarati), Kala Sahitya aur Samiksha—Dr Tarini Charan Das "Chidanand" (Oriya) Tamil Basha aur Kavi-Ya—Keshar Murti (Telugu), Padosi Deshon Ki Lok Kathain—Dr Vijay Raghav Reddi (Telugu), Mahakavi Vallattal—Dr K. S. Mani (Malayalam), Maatam—Swadesh Deepak (Punjabi), Assam Ki Lok Kathain—(Dr) Mrs Kamla Sanskrityayan (Nepali), Gandhari Dr B. R. Padam (Punjabi), Bhaskar—Dr Shiv Prasad Kosta (Kannada) Dr Kasturi Rangan (Tamil) Prof. Udipi Ramchandrav (Tamil), Jeth Ki Sanjh—Sadanand Sathe (Marathi), Nritya Bodh (Part I)—Dr Smt Shivani Pandya (Dalai) (Gujarati), Parushram Ki Behnain Dr M.S. Krishnamurti (Kannada) Ek Chhatri aur Chhoti Behn Mandur Sukumaran (Malayalam).

Bhatnagar awards announced

The Shanti Swarup Bhatnagar Science Awards were presented in New Delhi by the Prime Minister to the scientists for their exceptional work. The award carries a cash of Rs 20,000. The recipient of the award are: Prof. N. Mukunda of the Indian Institute of Science and Dr N.S. Satyamurthy of the Bhabha Atomic Research Centre (physical science); Prof P.R. Adiga of IIS and Prof T. Desiraju of the National Institute of Mental Health and Neuro Sciences (medical sciences); Dr V. S. Arunachalam of Defence Metallurgical Research Laboratory (engineering science); Prof R. Sridharan of Tata Institute of Fundamental Research (mathematical science); Prof. Assis Datta of Jawaharlal Nehru University and Dr J.S. Singh of Kumaun University (biological science); Dr J.G. Negi of National Geophysical Research Institute and Prof B.K. Sahu of Indian Institute of Technology, Bombay (earth sciences).

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Basu, Dipak Kumar. Some problems of special functions from classical and group theoretic points of view. University of Calcutta.

2. Gupta, Kamleshwar Kumar. Certain investigations in the differential geometry of Finsler spaces with non-symmetric connections. University of Gorakhpur.

3. John, V.N. Investigations in Randers' and Finsler spaces. University of Gorakhpur.

4. Kashyap, Nand Kishore. Biorthogonal polynomials and integral equations. University of Delhi.

5. Mehta, Fakir Chand. A generalized study of sampling for signals and error calculations. University of Delhi.

6. Patil, Hanmantgouda Parvathgouda. Some contributions to the theory of graphs. Karnatak University.

7. Ramachandra, K.V. Mathematical models based on Kanman estimation theory. Bangalore University.

8. Singh, Mahabir. On certain queueing net works of serial/biserial channels. Meerut University.

9. Singh, Shobh Nath. Certain investigations in the field of generalized hypergeometric functions. University of Gorakhpur.

10. Subba Rao, Bandaru Venkata. Representable autometrized algebras. Andhra University.

Statistics

1. Chacko, Annie. Some investigations on fractional factorials and weighing designs. University of Delhi.

2. Gujarathi, Chandrakant Chimanlal. Construction and combinatorial problems of some experimental designs. Sardar Patel University.

3. Sri Ramachandra Murthy, M. Some studies on the design and analysis of experiments with mixtures. Osmania University.

Physics

1. Chandrasekhar, Rama. Studies on some aspects of absorption of radio waves in the ionosphere. Andhra University.

2. Chilana, Gurmohinder Singh. Study of characteristic parameters of microstrip transmission line circuit elements used for MICs. University of Delhi.

3. Dattatrey Reddy, Dwarampudi. Studies on photoelectric effect in some rare earth elements around K. absorption edges. Andhra University.

4. Gera, Bhim Sain. Solar echoes and line-of-sight microwave propagation. University of Delhi.

5. Janardhanam, K. Solid state spectra of certain transition metal ions and fabrication of recording attachment to medium quartz spectrograph. Sri Venkateswara University.

6. Ramana Reddy, Saripalli Venkata Satya. Studies on incoherent scattering of gamma rays by bound electrons in Ag, Zr and Cu. Andhra University.

7. Rohitashava. Studies of electronic and vibrational spectra and molecular parameters of some polyatomic molecules and ions. Meerut University.

8. Saxena, Tushya Kumar. Study of three valley electron transport and impurity band conduction in n-type gallium arsenide single crystals. University of Delhi.

9. Shanbhag, Prakash Vishnu. Spectroscopic studies in some polyatomic molecules and calculation of thermodynamic quantities of some substituted pyridines. Karnatak University.

10. Sharma, Vandana. Microwave radiometric studies of atmospheric water vapour and attenuation measurements at 22. 235 GHz. University of Delhi.

11. Swamy, S.S.R.L. Design and fabrication of broad band monochromator/polychromator and preparation of holographic gratings. Jawaharlal Nehru Technological University.

12. Wahab, Mohammad Abdul. Low temperature X-ray diffraction study and crystal structure determination of CdI_2 polytypes. University of Delhi.

Chemistry

1. Antharjanam, T.G. Bhargavi. Chemistry of epoxides and olefins. University of Kerala.

2. Arora, Ashok Kumar. Bioinorganic aspects of Na, K, Ca and Mg. University of Indore.

3. Balakrishna, V.V. Coordination compounds in geochemical and metallurgical analyses : 2-Hydroxy-1-acetonaphthoneoxime and its isomers as ligands. Sri Venkateswara University.

4. Bera, Anil Kumar. Studies on the reactions of hexavalent uranium with organic ligands like neo-cupferron and oxine and their analytical applications. University of Calcutta.

5. Das, Dhruba Charan. Studies on some mixed ligand complexes. University of Sambalpur.

6. Dash, Madhusudan. Reactions of octahedral cobalt (III) complexes in solution. Utkal University.

7. Datta, Subir. Phytochemical investigation on Indian medicinal plants. University of Calcutta.

8. Garg, Yogesh Prakash. Polarography of nitrogen and sulphur containing compounds in ammonical solutions of heavy metal salts. Meerut University.

9. Gupta, Arun Kumar. Synthesis of some novel 1, 5-benthiazepines and related heterocycles. University of Rajasthan.

10. Heda, Bhagwandas. Thermogravimetric study of metal complexes. University of Indore.

11. Himmat Singh. Influence of degree of refining of lubricating oil base stocks on additive response. Meerut University.

12. Kaushik, Rajneesh Dutt. Substituent effect in oxidation reactions with particular reference to periodate oxidation. Meerut University.

13. Kharsan, Raghunandan Singh. Synthesis and analytical applications of some hydroxyamidines. Ravishankar University.

14. Khose, N.M. Synthesis and applications of porous condensate polymers. Saurashtra University.

15. Koul, Surinder. Studies on chemical consituents of Prangos pabularia, Adhatoda vasica and Glorios superba including chemical transformation of their major constituents. University of Jammu.

16. Krishna Murthy, Kambhampaty Radha. Azine and oxizine dyes as indicators. Andhra University.

17. Lakshminarayana., K. Studies in properties of salt solutions in non-aqueous media. Sri Venkateswara University.

18. Madan Lal. Studies on physical properties of some oils, specially edible, with special reference to their solubilization. Meerut University.

19. Mahobey, Hemlata. Studies on hydroximidines and their metal chelates. Ravishankar University.

20. Mishra, Bhabani Prasad. Studies on some nickel and cadmium complexes. Sambalpur University.

21. Narayana Swamy, G. Physico-chemical properties of solutions in organic solvents : Excess volumes and isentropic compressibilities. Sri Venkateswara University.

22. Panda, Chakradhar. Studies on some metal complexes with hydroxyacids in solution. Sambalpur University.

23. Paramhans, Bhikari Das. Spectral and magnetic properties of some metal complexes of oxime containing ligands. Meerut University.

24. Pokhariyal, Ganesh Prasad. Stereochemical features of Schiff base complexes of transition and inner-transition metals. Meerut University.

25. Pradhan, Banamali. Preparation and characterisation of some complexes of zinc and manganese. Sambalpur University.

26. Ray, Swapan Kumar. Chemical modification of silylated surfaces, new support materials for purification of biopolymers. University of Calcutta.

27. Sahai, Raghvendra. Chemistry of natural products: Chemical investigation of medicinal plants. Meerut University.

28. Saini, Suraj Bhan. Thermodynamics of some binary mixtures with specific interaction between components. Panjab University.

29. Saplay, Kishore Madhukar. Photochemistry of some organic molecules. M.S. University of Baroda.

30. Sat Paul. Studies with some metal ferrocyanide gels and their membranes. Meerut University.

31. Sharma, Rajbala. Chemical changes in blood and urine after feeding commonly edible legumes to rabbits. Meerut University.

32. Shashi Kant. Synthesis and solution properties of vinyl polymers : Poly (N-phenylacrylamides). Sardar Patel University.

33. Singh, Bhan Pratap. Kinetics and mechanism of oxidation of alicyclic alcohols by peroxy disulphate ion. Meerut University.

34. Suri, Jogishwar Lal. Investigation on the chemical constituents of pharmacologically active plants. University of Jammu.

35. Talagadadivi, Ravi Prashad. A kinetic study of some redox reactions by monovalent and trivalent silver. Osmania University.

36. Tiwari, Aditya Prakash. Study in coordination and analytical aspects of few transitional and non-transitional metal ions with p-diethylaminoanil of phenylglyoxal. Meerut University.

37. Tyagi, Anil Kumar. Studies of heterocyclic derivatives derived from cyclohexane. University of Rajasthan.

38. Venkata Subbaiah, Kanneganti. Kinetics of some oxidation reactions with iron (III)-2,2' Bipyridyl complex. Andhra University.

39. Vyas, Harshadkumar Ambalal. Pyrolysis of poly chelates. M.S. University of Baroda.

40. Walia, Ajit. Preparation and characterisation of organotin (IV) derivatives with N, P, As, O and S containing ligands. University of Delhi.

Earth Sciences

1. Ahluwalia, Arun Deep. A study of phosphorite from lower Tal formation of Mussoorie, Uttar Pradesh, India. Panjab University.

2. Bhaskara Rao, B. Geology and mineralisation in Zangamrajupalle-Varikunta belt, Cuddapah District, A.P., India. Osmania University.

3. Joshi, Anil. A study of bauxitisation in two east coast deposits at Galikonda (Andhra Pradesh) and Pottangi (Orissa). University of Delhi.

4. Nanda Kumar, G. Wavefield and attenuation studies on refraction seismograms of some weathered zone investigations in the granitic terrain around Hyderabad, A.P. Osmania University.

5. Satyanarayana Prasad, Nekkanti Venkata Bhaskara Siva. Geo-hydrological and geophysical investigations along Visakhapatnam Bhimilipatma Coast. Andhra University.

6. Venkata Naidu, Bheemineni. Geology, mineralogy and geochemistry of the manganese deposit of the Adilabad. Area, Andhra Pradesh, India. Andhra University.

7. Vyasa Rao, A.N. A study of serpentine, asbestos and barytes mineralization in the Vempalle Dolomitic limestones of Pulivendla area, Cuddapah District, Andhra Pradesh, India. Sri Venkateswara University.

Engineering and Technology

1. Munivenkata Reddy, Y. Irrigation water management for rice. Sri Venkateswara University.

2. Patel, Ashok Kumar. Studies on variation of spectral signatures in relation to certain geotechnical properties of soil samples. University of Indore.

BIOLOGICAL SCIENCES

Biochemistry

1. Das, Tapati. Studies on the cytochemical changes related to pantothenate metabolism in streptococci. University of Calcutta.

2. Dave, Ila Jitendra. Nutritional studies during pregnancy and lactation. M.S. University of Baroda.

Botany

1. Agarwal, Anshu. Studies on seed borne mycoflora of barley, Hordeum vulgare L with special reference to Rajasthan. University of Rajasthan.

2. Arya, Meenakshi. Histopathology and histochemistry of root galls incited by Meloidogyne incognita Chitwood on Daucus carota. University of Rajasthan.

3. Atiya Khanum. Ecological studies of the Husain Sagar and Saroornagar Lakes with reference to the planktonic and matforming algal communities. Osmania University.

4. Bhagyanarayana, G. A monographic study of the genus Melampsora (Uredinales) Osmania University.

5. Bhavanarayana, Kandala. Physiological studies of fruits. Sardar Patel University.

6. Garg, Amar Prakash. Studies on microfungi associated with living and dead leaves of Triticale and Cyamopsis. Meerut University.

7. Gill, Ravinder. Studies on isolation and regeneration of protoplasts of Nicotiana plumbaginifolia and N. rustica Linn. University of Delhi.

8. Gupta, Arvind Kumar. Floristic studies of District Ghaziabad and morphological studies in Tamaricaceae. Meerut University.

9. Gupta, Rameshwar Dayal. Studies on germination and related problems in some members of Compositae. Meerut University.

10. Jain, Vijay Kumar. Physiological aspects of heavy metal pollution with particular reference to Cadmium. Meerut University.

11. Joshi, Jaimin Vithaldas. A study of the flora of Surat and its environs. M.S. University of Baroda.

12. Mathur, Manju. Interaction between pathogens and non-pathogens on the leaf surface. University of Delhi.

13. Mehta, Balmukund Sunder Lal. Autecological studies on some weeds. M.S. University of Baroda.

14. Mohammad Khaja Wahabuddin. Mutagenic studies in Dolichos lablab L. var. Lignosus (field bean). Osmania University.

15. Narania, Kantilal. Pathological and physiological studies on some Deuteromycetes. Kakatiya University.

16. Patel, R.B. Microbiological aspects of some fruits and vegetables. Saurashtra University.

17. Prasad, Priya Ranjan. Studies of the effect of alkanesulfonates and antibiotics separately and in combination on Phaseols vulgaris L. University of Bihar.

18. Ram Rao, S. Seeta. Growth regulating activities of certain proanthocyanidins, catechins and flavones. Osmania University.

19. Rawat, Madan Singh. Contribution to the pollen morphology of certain dicotyledons occurring in the Doon Valley with remarks on their fossil records. Meerut University.

20. Satya Mohan. Limnology of the Osman Sagar and Mir Alam Lakes. Osmania University.

21. Sharma, Lalit Kumar. Floristic studies of District Bulandshahr and morphological studies of Desmodium and Alysicarpus Meck with special reference to fruit structure. Meerut University.

22. Sikdar, Jayanta Kumar. Studies on the vegetation and flora of Jalpaiguri District, West Bengal. University of Calcutta.

23. Singh, Anirudh Kumar. Floristic studies of District Aligarh and morphological studies in the family Chenopodiaceae. Meerut University.

24. Srivastava, Ramesh Chandra. Effects of some nitrogenous and non-nitrogenous fertilizers on nitrogen metabolism of Phaseolus mungo L. University of Gorakhpur.

25. Srivastava, Susheel Kumar. Studies on abscission in Hibiscus sabdariffa L. Meerut University.

26. Surendra Pal Singh. Studies on the physiology of chlorophyll development in some cucurbits and legumes. Meerut University.

Zoology

1. Chattopadhyay, Rabindranath. Replicative and transcriptive organisation of Drosophila genome and genetic dissection of regulation. University of Calcutta.

2. Dhaliwal, Manjeet Kaur. Chromosomes of Indian Muntjac, Muntiacus muntjak. Panjab University.

3. Dhiman, Sulekh Chand. Studies on the biology, bionomics and morphology of Metacarthus pulchellus Dall (Heteroptera; Berytidae), a pest of bottle gourd (Lauki) Lagenaria vulgaris. Meerut University.

4. Garg, Sudhir Krishan. Experimental studies on the role of pineal organ in the regulation of reproductive cycles in the catfish, Heteropneustes fossilis (Bloch). University of Delhi.

5. Jhingan, Veena. Comparative anatomy of the hepatic veins. Panjab University.

6. Mishra, Pramod Chandra. Ecophysiological studies on tropical earthworms: Density, biomass, feeding biology, metabolism, digestive enzymes and their role in soil. Sambalpur University.

7. Murali Mohan, J. Some studies on nematode parasites of economic plants of Hyderabad, Andhra Pradesh. Osmania University.

8. Nagpal, Neelima. Morphological and cytochemical studies on the defensive glands of arthropods. Panjab University.

9. Nasreen. Responses of certain fresh water protozoa to some toxicants. Osmania University.

10. Neeraja, P. Metabolic alterations during induced ammonia stress in different tissues of frog, Rana hexadactyla (Lesson). Sri Venkateswara University.

11. Rema Devi, K. Bionomics of rat fleas influence of larval environmental factors upon adult fecundity of Xenopsylla cheopis and X. astia (Siphonoptera : Pulicidae). University of Kerala.

12. Sharma, Krishna Kumar. Studies on the biology, bionomics and external morphology of Oxycarenus laetus Kirby. Meerut University.

13. Shyamala Devi. Studies on the histomorphology of the internal organ systems of soapnut bug, Tessaratoma Javanica (Thunberg) (Heteroptera: Pentatomidae. Osmania University.

14. Sidhu, Chanan Singh. Taxonomic studies of some Indian Eremninae (Coleoptera : Curcullionidae) with particular reference to the structure of genitalia. Panjab University.

15. Singh, Rabindra Nath. Studies on chemosterilization of Chrysomya megacephala Fabricius (Diptera: Calliphoridae) with Colchicine. University of Gorakhpur.

16. Tara Chand, Ashi. Gamma-sterilization of rice-moth, Corcyra cephalonica Staint. University of Delhi.

17. Venugopala Pillai, S. Growth studies in silkworm, Bombay mori(L), with special reference to the economic characters. University of Kerala.

18. Zaheruddeen, S.M. Studies on host range and biology of some major insect pests of rice in relation to weeds, wild rices and rotation crops. Utkal University.

Medical Sciences

1. Talwar, Poonam. Regulation of glucose metabolism in lung. University of Delhi.

Agriculture

1. Basu, Sanghamitra. Studies on adventitious root formation on cuttings and air layers of some difficult-to-root fruit plants. University of Calcutta.

2. Bhargava, Chuni Lal. Studies on the resistance of rice to Pyricularia Oryzal Cavara. Himachal Pradesh Agricultural University.

3. Harpal Singh. Study on the nitrogenous fertilizer economy in wheat through weed control. Meerut University.

4. Patil, Raman Avachit. Combining ability and heterosis studies in intra hirsutum and hirsutum X barbadense crosses for yield and yield contributing traits in cotton. Marathwada Agricultural University.

5. Roy, Sadasiv. A study of nematode fauna of Orissa. Orissa University of Agriculture and Technology.

6. Sabha Muni. Efficient use of potassium in rice in soils of Uttar Pradesh. C.S. Azad University of Agriculture and Technology.

7. Shahane, Trimbak Ganpatrao. Heterosis, combining ability and stability studies in some promising male and female lines derived from exotic X Indian crosses in sorghum. Sorghum bicolor (L) Moench. Marathwada Agricultural University.

8. Sharma, Dharmendra Ramnarayan. Genetic analysis of yield and yield components in pearl millet, Pennisetum typhoides S & H. Marathwada Agricultural University.

9. Sivan Pillai, K. Quantitative genetic study of yield and its components in blackgram, Phaseolus mungo L. Kerala Agricultural University.

10. Sukadev, L. Genetic effects of iodine-125 in mice. Osmania University.

11. Sultan Ahmad. Genetic architecture of seed yield and its components in black gram, Vigna mungo L. Hepper. C.S. Azad University of Agriculture and Technology.

12. Trepathi, Sheshnath. Studies on agronomy of cigar tobacco in the eastern region of India. University of Calcutta.

13. Upadhyay, Rang Lal. Evaluation of soil tests for sulphur and zinc and assessment of their critical limits for various crops. C.S. Azad University of Agriculture and Technology.

14. Vijai Prakash. Genetic analysis of yield and its components traits in bread wheat, Triticum aestivum L em Thell. C.S. Azad University of Agriculture and Technology.

Veterinary Science

1. Solanki, Baban Bankatlal. Studies on sodium chloride toxicity in domestic fowl. Konkan Krishi Vidyapeeth.

ADDITIONS TO AIU LIBRARY

All India Conference of District Education Officers on 10+2+3, Delhi, 1976. *Report*. Delhi, National Staff College for Educational Planners and Administrators, 1977. 301p.

APEID, Bangkok. *Exploring new directions in teacher education : Re-orienting teacher education for rural development*. Bangkok, Unesco Regional Office for Education in Asia, 1977. 194p.

———. *Participation in innovation : Report of participating activities*, 1973-77. 2V. Bangkok, Author, 1977.

APEID Advanced-Level Workshop, Bangkok, 1977. *Continuing education for teacher educators : Report*. Bangkok, Author, 1978. 64p.

APEID. Advanced-Level Workshop on Education for Rural Development, Delhi, 1977. *Managing education for rural development : Report*. Bangkok, Unesco Regional Office for Education in Asia, 1977. 71p.

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INDIAN INSTITUTE OF TECHNOLOGY
KHARAGPUR

Advertisement No. R/2/81/Scheme

Applications are invited for the undermentioned posts in the different Centres/sponsored Research Schemes at Indian Institute of Technology, Kharagpur, West Bengal. All posts are on contract basis for the duration mentioned against each. The contracts are renewable if the Schemes are continued.

A. CENTRE : POST HARVEST TECHNOLOGY

I. Scheme : Regional Extension Service Centre of P.HTC.

(1) **Post** : Senior Engineer (Extension)—One post.
Scale of Pay
Rs. 1200-50-1300-60-1900/- plus D.A. as admissible.
Duration : 5 years
Qualifications and Experience
Essential

(i) A good academic record with Master's Degree in Agricultural Engineering and Ph.D. in Agricultural Engg., preferable with specialization in Crop Process Engineering. (ii) Seven years' experience in the field of Crop Process Engineering of which at least 3 years should be in teaching and/or research.

Desirable
(i) Experience in guiding research.
(ii) Published research work of good standard.
(iii) Aptitude for transfer of technology work with the farmers and rice millers.

(2) **Post** : Junior Engineer (Extension)—One Post
Scale of Pay
Rs. 700-40-1100-50-1600/- plus D.A. as admissible.
Duration : 5 years.
Qualifications and Experience
Essential

(i) A good academic record with Master's degree in Agricultural Engineering preferably with specialization in Crop Process Engineering (ii) Aptitude for doing extension work with farmers and rice millers. (iii) 2 years' experience in Crop Process Engineering.

II. SCHEME : HARVEST AND POST HARVEST TECHNOLOGY (ICAR)

(1) **Post** : Junior Research Officer—One post.
Scale of Pay
Rs. 700-40-1100-50-1600/- plus D.A. as admissible.
Duration : VI Plan Period.
Qualifications and Experience
Essential

(i) A good Master's degree in Agricultural Science and Ph.D. Degree. (ii) Experience of conducting agronomical field trials/experiments.

(2) **Post** : Senior Research Officer—One post.
Scale of Pay
Rs. 1200-50-1300-60-1900/- plus D.A. as admissible.
Duration : 3 years.
Qualifications and Experiences
Essential

(i) A good academic record with Master's degree in Agricultural Engg. with specialisation in Crop Process Engineering and Ph.D. Degree. (ii) 7 years' experience of which at least 5 years' should be in teaching and/or research. (iii) Published research work of good quality. (iv) Experience of guiding/conducting research.

Desirable
Aptitude for doing fieldwork.

III. SCHEME : ENERGY REQUIREMENT FOR INTENSIVE AGRICULTURAL PRODUCTION (ICAR)

(1) **Post** : Senior Research Officer—One post.
Scale of Pay
Rs. 1200-50-1300-60-1900/- plus D.A. as admissible.
Duration : 3 years.
Qualifications and Experience
Essential

(i) A good Master's Degree in Agricultural Engineering and Ph.D. Degree. (ii) Experience of working on energy studies in pre- and post-production operations.

(2) **Post** : Assistant Statistician—One post.
Scale of Pay
Rs. 700-40-1100-50-1600/- plus D.A. as admissible.
Duration : VI Plan Period.
Qualifications and Experience
Essential

(i) A good Master's degree in Mathematics/Statistics/Agricultural Statistics with Ph.D. Degree. (ii) Experience in application of statistics in the field of Agriculture.

B. DEPARTMENT: AGRICULTURAL ENGINEERING

IV. Scheme : Integrated Project on Water Management and Soil Salinity (ICAR)

(1) **Post** : Chief Scientist—One post.
Scale of Pay
Rs. 1500-60-1800-100-2000-125/2-2500/- plus D.A. as admissible.
Qualifications and Experience
Essential

(i) A good academic record with Doctorate degree in Agronomy/Soil Science/Agril. Engineering with 12 years of experience in appropriate field of specialization.

Desirable

(i) Ability to plan, guide and organise research in Water Management. (ii) Research experience in Water Management.

(2) **Post** : Junior Scientist—One Post
Scale of Pay
Rs. 700-40-1100-50-1600/- plus D.A. as admissible.
Qualifications and Experience
Essential

A good academic record with Master's Degree in engineering with specialization in Soil Water Conservation Engineering or a B.Sc. (Agril) degree with specialization in Agronomy/Soil Science followed by a Ph.D. degree.

Desirable
Two years research experience in the appropriate field.

V. Scheme : Water Use and Management for Agricultural Production (Ford Foundation)

Post : (1) Senior Scientific Officer—Three posts. (1 post in Agril. Engg., 1 post in Agronomy, 1 post in Agril. Economics).
Scale of Pay
Rs. 1200-50-1300-60-1900/- plus D.A. as admissible.
Age
Preferably between 30 and 45 years.
Qualifications and Experience
Essential

(i) A good academic record with Bachelors and Master's degree in Agricultural Engineering with specialization in Soil and Water Conservation Engineering in Agricultural Science with specialization in Agronomy or Agricultural Economics. (ii) Ph.D. in Water Management/Soil and Water Conservation Engineering/Agronomy/Agricultural Economics. (iii) Five years' experience in the field of specialisation of which two years' should be in Water Management.

Desirable

Experience in research work associated with Water Management/Socio-economic data collection and interpretation.

(2) **Post** : Junior Scientific Officer—Two posts.
Scale of Pay
Rs. 700-40-1100-50-1600/- plus D.A. as admissible.
Age
25 to 38 years
Qualifications and Experience
Essential

(i) A good Bachelor's degree in Agricultural Engineering. (ii) A good Master's degree in Soil and Water Conservation Engineering. (iii) Experience in Water Management.

Desirable

(i) Doctorate degree in Agril. Engg. (ii) Published research work of good standard.

C. CENTRE : RADAR AND COMMUNICATION

VI. Schemes : 1. Microwave Antennas Including Phased Arrays (Duration 4 Years).
VII. 2. Electromagnetic Scattering and Target Identification (Duration 4 Years)

VIII. 3. Geological Discontinuities and Weak Zones in Coal Mines Using Radar Techniques (Duration 2 Years)

Posts: (I) Principal Scientific Officer—Two posts. (II) Senior Scientific Officer Grade I—Six posts. (III) Junior Scientific Officer—Three posts.

Scale of Pay

Rs. 1500-60-1800-100-2000/- plus D.A. as admissible (for Post I)

Rs. 1200-50-1300-60-1900/- plus D.A. as admissible (for Post II)

Rs. 700-40-1100-50-1600/- plus D.A. as admissible (for Post III).

Qualifications and Experience

Essential

For Post I : Excellent academic record with M.Tech/Ph.D. degree in Electronics and Communication Engg. or equivalent with seven to ten years experience in research and/or teaching.

For Post II : First class B.Tech. degree in Electronics and Communication Engg. or equivalent with seven years experience in research/industry.

For Post III : First class B. Tech. degree in Electronics and Communication Engg. or equivalent with three years experience in research/industry.

For all above posts, special knowledge in any one of the following area is essential :

(a) Microwave Antennas
(b) Phased Array Antennas
(c) Electromagnetics.

IX. Scheme : Various Research Schemes in the Centre

Duration

2-4 years.

Post : Senior Research Assistants—Four Posts.

Scale of Pay

Rs. 500-25-750-EB-30-900/- plus D.A. as admissible.

Qualifications and Experience

First class Bachelor's degree in Electronics Communication Engg. or equivalent/First class Master's degree in Material Science. M. Tech. degree desirable.

D. DEPARTMENT : MINING ENGINEERING

X. Scheme : Spontaneous Combustion in Large Scale Coal Stacks

Post : Junior Research Officer—One Post

Scale of Pay

Rs. 700-40-1100-50-1600/- plus D.A. as admissible.

Qualifications and Experience

Essential

At least First Class B.Tech. equivalent in Mining Engg. or M.Sc. in Chemistry (Physical Chemistry) or M.Tech. in Chem. Engg. preferably with specialization in Fuel Technology, Coal processing.

E. DEPARTMENT : MECHANICAL ENGINEERING

XI. Scheme: Heat Transfer from Rotating Blades

Post : Research Associate—One Post

Salary

Rs. 1000/- p.m. (consolidated)

Qualifications and Experience

Essential

An excellent academic record with Master's degree in Mechanical Engineering. Atleast three years' experience in R & D.

Desirable

Ph.D. in the areas of thermal sciences, Experimentalist preferred.

F. DEPARTMENT : AGRICULTURE AND REGIONAL PLANNING

XII. Scheme : Urban and Regional Planning (Under Ford Foundation Grant)

Post : (1) Senior Research Officer (SRO)—One Post. (2) Junior Research Officer (JRO)—Two Posts.

Salary

Rs. 1300/- p.m. (consolidated) for SRO

Rs. 750/- p.m. (consolidated) for JRO.

Duration

The posts will continue during the continuance of the Scheme i.e., upto 31.1.82.

Qualifications and Experience

A good Master's degree in City, Regional Planning or Architecture with capacity for independent research. Experience of working under a Development Authority is desirable.

G. DEPARTMENT : CHEMICAL ENGINEERING

XIII. Scheme : Investigation on Gas-Liquid Dispersion and Mass Transfer in Ejector Cascade.

Post : Research Associate—One post

Salary

Rs. 1200/- P.M. (consolidated)

Duration : 2 years.

Qualifications and Experience

First class B.Tech. degree in Chemical Engineering with two years research or practical experience in gas-liquid mixing and mass transfer.

Desirable : M. Tech. Degree.

XIV. Scheme : Development of a computer Programme for Simulation of Coal Beneficiation Processes.

Post : (i) Research Associate—One Post. (ii) Senior Research Assistant—One post.

Salary

For Post (i) Rs. 1100/- P.M. consolidated.

Scale of Pay

For Post (ii) : Rs. 550-25-750-EB-30-900/- plus D.A. as admissible.

Duration

The above posts are temporary during the tenure of the Scheme.

Age

Below 45 years (For Post i)

Below 40 years (For post ii)

Qualifications and Experience

(For Post i) : Essential :

M. Tech., M.Phil., D.I.I.T., D.I.I.Sc., or equivalent degree or diploma in Computer Science, Mineral Beneficiation, Chemical, Mining or Metallurgical Engineering, Geology or Chemistry.

Desirable

Research or job experience or Ph.D. degree in a related field.

(For Post ii)

Essential

Bachelor's degree in Chemical, Mechanical, Mining or Metallurgical Engineering or Master's degree in Chemistry, Geology or Mathematics.

Desirable

Post-graduate degree or diploma in Mineral Beneficiation or Computer Science or experience in Computer Programming or Coal Preparation.

H. DEPARTMENT : CIVIL ENGINEERING

XV. Scheme : Development of methods such as benkelman Beam deflection method for Evaluation of structural capacity of existing pavements and also for estimation and design of overlays for strengthening of any weak Pavements.

Post : Research Scientist—Two Posts.

Scale of Pay

Rs. 1000/- P.M. consolidated.

Duration: 3 years.

Qualification and Experience

Essential

A good Bachelor's degree in Civil Engineering with a Masters' degree in Highway Traffic Engineering.

Preference will be given to persons having 1 or 2 years' of practical experience in design, construction, and/ or maintenance of roads.

Application forms may be had from the Registrar on request along with an unstamped self-addressed envelope of size 23 cm x 10 cm. Applications accompanied with an application fee (non-refundable) of Rs 3.00 (Rs 0.75 for SC/ST candidates) for the posts of SRA and JRO and Rs 7.50 (Rs. 1.87 for SC/ST candidates) for other categories payable by means of crossed Indian Postal Order to the Indian Institute of Technology, Kharagpur at Kharagpur-2 Post Office should reach the Registrar, IIT, Kharagpur by the **10th June, 1981**.

Applicants who are in the employment of Government/Semi-Government organisations or of any Government undertaking must send their applications through proper channel.

A.K. Sur
REGISTRAR

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

Notification No. 4

Applications for the following posts are invited in the prescribed forms which will be available upto **23.5.1981** alongwith details of qualifications from the undersigned on pre-payment of Rs. 2.00 (Re. 0.50 Ps. for the members of Scheduled Castes/Scheduled Tribes) by means of Crossed Indian Postal Order payable to the Registrar, M.S. University of Baroda alongwith a self-addressed envelope of 30 cms x 12 cms for each post.

1. **Principal, Polytechnic**
   Scale : Rs. 1600-80-2000.
2. **Reader in Sociology, Faculty of Arts**
   Scale : Rs. 1200-50-1300-60-1600-Assessment-60-1900.

The application forms will be available during the office hours between 11.30 a.m. to 2.00 p.m. on all working days.

The persons who have already applied

for the post of Principal, Polytechnic in reference to the Notification No. 8 dated 9.2.1980 issued earlier need not apply.

If all things being equal, preference will be given to candidates belonging to SC/ST and Socially and Educationally Backward Communities including Nomedic and Denotified Tribes.

The application form duly completed and accompanied by Crossed Indian Postal Order payable to the Registrar, M.S. University, Baroda worth Rs. 10 (for SC/ST Candidates Rs. 2.50) should reach on or before **30.5.1981.** The candidate if called for interview will have to come at his own expense.

K.A. Amin
REGISTRAR

ANDHRA PRADESH AGRICULTURAL UNIVERSITY
HYDERABAD-30

Advertisement No. 3/RC/81
dt. 29.4.1981

Applications in the prescribed form together with a Registration fee of Rs. 5/- are invited for the under mentioned posts, so as to reach the undersigned on or before **10.6.1981.**

A. Associate Professor in Veterinary Pathology—1 Post

(Faculty of Veterinary Science)

Scale of Pay : Rs. 1200-50-1300-60-1900.

Qualifications : Essential

(i) Ph.D. degree or any other equivalent degree in the subject concerned or should have published a work of an equally high standard in addition to Master's degree in the subject concerned.

(ii) Experience of five years in the subject concerned.

B. Junior Scientists

Faculty of Agriculture

(Number of vacancies are given in brackets against each discipline)

(a) Plant Breeding and Genetics (50)
(b) Agronomy (4)
(c) Soil Science and Agril. Chemistry (2)
(d) Entomology (2)
(e) Agricultural Engineering (3)
(f) Agricultural Economics (1)
(g) Horticulture (1).

Qualifications

A post-graduate degree in the subject concerned in addition to B.Sc. (Ag.)

(h) Farm Forestry (1)

Qualifications

M.Sc. (Ag.) with specialisation in Plant Breeding or M.Sc. Botany with specialised training/Diploma in Forestry/Silviculture.

C. Junior Scientists

Faculty of Veterinary Science

(Number of vacancies are given in brackets against each discipline)

(a) Animal Science (2)
(b) Animal Genetics and Breeding (2)
(c) Animal Reproduction and Gynaecology (2)
(d) Veterinary Microbiology (1)
(e) Veterinary Medicine (4)
(f) Poultry Science (2)
(g) Dairy Science (2)
(h) Vety Anatomy (1)
(i) Vety Pharmacology (1)
(j) Vety Pathology (2)
(k) Vety Surgery (2)
(l) Vety Parasitology (2)

Qualifications

A post-graduate degree in the subject concerned in addition to B.V.Sc. degree

(m) **Fishery Science**

(i) Zoology (2)

Qualifications : A post-graduate degree in the subject concerned with specialisation in Fishery Science.

(ii) Chemistry (1)

Qualifications : A post-graduate degree in the subject concerned.

Consolidated Pay

(i) The persons appointed as **Junior Scientists** will be paid consolidated pay as follows :
  (a) Persons with Master's degree in the concerned subject Rs. 900/- p.m.
  (b) Persons with Ph.D. degree in the subject concerned Rs. 1000/- p.m.

(ii) The appointments as Junior Scientists will be purely temporary and are liable to be terminated at one month's notice on either side.

(iii) The rule of reservation for candidates belonging to Scheduled Castes Scheduled Tribes, and Backward Classes will be observed.

(iv) Applicants should appear for interview at their own cost.

(v) The University reserves the right not to fill the posts now advertised.

(vi) The number of posts may vary at the time filling.

(vii) Application forms together with details of qualifications can be had from the Registrar, Andhra Pradesh Agricultural University, Rajendranagar, Hyderabad-500030 on payment of Rs. 2/- in person or with a postal order of Rs. 5/- uncrossed for sending through registered post.

E. S. Reddi
REGISTRAR

LALIT NARAYAN MITHILA UNIVERSITY
KAMESHWAR NAGAR, DARBHANGA
WANTED

Advertisement No. 1/81.

Applications in the prescribed form are invited from Indian citizens for the following posts under L.N. Mithila University service, Darbhanga. The applications together with a fee of Rs. 10/- by crossed Indian Postal Order payable to the Registrar should reach the undersigned on or before **15.6.1981.**

(a) Principal

Scale of pay—(i) Rs. 1500-60-1800-100-2000-125-2500.
(ii) Rs. 1200-50-1300-60-1900.

(b) Reader

Scale of pay—Rs. 1200-50-1300-60-1900.

(c) Inspector of Colleges (Arts)

Scale of pay—Rs. 1340-65-1730-70-1870.

POSTS OF READER IN THE FOLLOWING SUBJECTS

Name of the subject

1. Hindi
2. Maithili
3. English
4. Sanskrit
5. Urdu
6. History
7. Geography
8. Sociology
9. Psychology
10. Economics
11. Political Science
12. Philosophy
13. Mathematics
14. Physics
15. Chemistry
16. Botany
17. Zoology
18. Commerce

Application forms can be had from the office of the Registrar, L.N. Mithila University on payment of Rs. 2/- through crossed Indian Postal Order. Candidates intending to receive forms by post are required to send a self addressed envelope (23 cm. x 10 cm.) with postage stamps worth Rs. 3.50 p. affixed to it with the words "APPLICATION FORM FOR SUPERIOR POSTS" superscribed on it, Money Order or cheque will not be accepted.

(A) QUALIFICATIONS FOR THE POST OF PRINCIPAL

(Pay Scale) : "Pay of University Professor/Reader plus an allowance of Rs. 150/- p.m. plus rent free house or 10% of the salary in lieu thereof."

A first or high second class Master's degree or equivalent degree of a foreign University with consistently good academic record and not less than **twelve** years' teaching experience at least as a lecturer in a degree college/University Department.

Provided that the scale of pay of University Professor shall be admissible only to those who possess the qualification of a University Professor and have been declared suitable for appointment in the scale by the competent authority (Selection Committee) or who are already University Professor, on the recommendation of the Commission, at the time of appointment.

Provided further that for the purpose of teaching experience 15 years of experience in a degree college as Principal will satisfy the requirement in respect of 10 years teaching experience in Post-Graduate Classes.

(B) QUALIFICATION FOR THE POST OF READER

(i) A first class or high second class Master's degree or equivalent degree of a foreign University in the subject concerned with consistently good academic record followed by a doctor's degree; and

(ii) With at least 5 years teaching experience in Post-Graduate Classes or 7 years teaching experience in Honours and Post-Graduate classes taken together or 12 years teaching experience in degree classes.

Provided that the requirement of a first or high second class Master's degree for appointment to the post of Reader may be relaxed to bare second class in the case of a teacher who apart from obtaining his own Ph.D. has successfully guided research work leading to the award of Doctorate degree or has published considerable research work in standard journals beyond what he did for the Doctorate degree, and has put at least eight years of teaching experience in the Post-Graduate class or ten years of teaching experience in the Honours and the Post-Graduate class taken together or fifteen years of teaching experience in degree classes.

(C) QUALIFICATION FOR THE POST OF INSPECTOR OF COLLEGES (ARTS)

(i) At least 2nd Class Master's degree in the faculty concerned or a degree recognised by the University as equivalent to; and

(ii) Not less than ten years' experience of University administration or ten years' experience as a Principal of a College or the Head of a University Department or not less than 15 years experience of a teacher in a University or College affiliated to it.

Candidates already in employment should send their application through their employers. They may, however send an advance copy which must be received in University office on or before the due date. Applications received after the due date shall not be considered. The age of superannuation for teaching posts is sixty years and for the post of Inspector of Colleges, the superannuation age is sixty two.

The candidates will be required to appear for the interview, if called, at their own cost. The Selection Committee may recommend higher initial salary to a person specially qualified for the post.

The last date for applicants residing outside India is **30-6-1981**.

All communications should be addressed to the Registrar by designation only.

R.N. Jha
REGISTRAR

INSTITUTE OF TECHNOLOGY
BANARAS HINDU UNIVERSITY
VARANASI-221005
ADMISSION TO POSTGRADUATE COURSE-1981
Advt. No. 2/1981-82

APPLICATIONS are invited from candidates possessing requisite qualifications for admission through a written test to be held on 14th and/or 15th July, 1981 at the Institute at Varanasi, for Post-Graduate courses leading to :

M. TECH. DEGREE IN :—

(1) CERAMIC ENGINEERING:	With choice of different elective
(2) CHEMICAL ENGINEERING:	With choice of different elective
(3) CIVIL ENGINEERING:	With specialisation in— (a) Hydraulic Engineering, (b) Soil Mechanics & Foundation Engineering (c) Structural Engineering and (d) Enviromental Engineering
(4) ELECTRONICS ENGINEERING:	With specialisation in— (a) Microwave Engineering (b) Electronic Instrumentation and (c) Micro-electronics
(5) ELECTRICAL ENGINEERING:	With specialisation in— (a) ControlS ystem Engineering (b) Power System Engineering and (c) Electrical Machines
(6) MECHANICAL ENGINEERING:	With specialisation in— ((a) Machine Design (b) Heat Power and c) Production Engineering
(7) METALLURGICAL ENGINEERING:	With specialisation in— (a) Extractive Metallurgy, (b) Industrial Metallurgy, and (c) Alloy Technology.
(8) MINING ENGINEERING:	With specialisation in— (a) Coal Mining, (b) Metalliferous Mining, and (c) Mine Planning.

M. PHARM. DEGREE IN:

PHARMACEUTICS:	With choice of different electives.

ELIGIBILITY	Bachelor's degree in Engineering/Technology/Pharmacy in appropriate discipline and with a minimum of 60% (55% in case of SC/ST candidates) marks in the aggregate. Candidates who have appeared or will be shortly appearing in the qualifying examination may also apply and last date for submitting result with Marksheet is **14th July, 1981**, failing which the applicant will not be permitted to appear in the test. For M. Tech. (Electronics Engineering/Electrical Engineering a candidate having B..Tech. (Electrical Engineering/Electronics Engineering) may also apply provided he has appropriate background of the subject of the Branch. A limited number of seats are also available for Engineering, Pharmacy graduates who are sponsored by their employers on study-leave. Their selection will be based on their academic performance in their Bachelor's degree examination and their experienee.
RESERVATION	5% seats are reserved for candidates belonging to Scheduled Caste/Scheduled Tribe provided they fulfil the minimum requirements for admission (which in their cases is 55% marks in aggregate of the qualifying examination).
SCHOLARSHIPS	All the admitted candidates will be entitled to Junior Fellowship of Rs. 600/- p.m. provided they have secured a minimum of 60% (55% in case of SC/ST candidates) marks at the qualifying examination. Sponsored candidates will not be eligible for any scholarship.
GENERAL	All the Departments of the Institute are fully equipped on modern lines and also extend facilities for research leading to Ph.D. degree in respective fields. Candidates called for written test/interview may be paid return second class fare from their place of residence to the place of written test/interview provided that the distance exceeds 200 kilometres each way.
HOW TO APPLY	Prescribed application forms with instructions available at Counter on paoment of Re. 1/- or by post, enclosing Postal Order payable to I.T., B.H.U., Varanasi-221005. Address for request for forms and submission for completed forms :— **The Assistant Registrar,** **Institute of Technology, Banaras Hindu University,** **Varanasi-221005 (INDIA).**
LAST DATE	(a) For issue of Forms : 15th June, 1981 by post 22nd June, 1981 at Counter. (b) For submission of completed Forms :—**22nd June, 1981**.

SOUTH GUJARAT UNIVERSITY, SURAT

Applications are invited in the prescribed form (in eight copies) for the following teaching Posts—in the Post-Graduate Departments of the University.

Sr. No. Name of the Department and the Number of Posts.

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(1) **ECONOMICS**
One Reader (Econometrics)
In addition to having specialisation in Econometrics, the candidate must have teaching and research experience in Regional Economics and Economic Development and Planning.

(2) **MATHEMATICS/STATISTICS**
One Lecturer in Mathematics

(3) **SOCIOLOGY**
One Lecturer
Preferably specializing in Industrial / Sociology / Political Sociology.

(4) **BUSINESS & INDUSTRIAL MANAGEMENT**
One Professor
Three Lecturers
Professor/Lecturers will be required in the areas of Marketing Management / Organisational Behaviour and Personnel Management/Production Management/ Quantitative Economy Management/Entrepreneurial Development/Management of Co-operatives/Financial Management.

(5) **ENGLISH**
One Professor

(6) **CHEMISTRY**
One Professor
Qualified in Physical/Organic/ Inorganic Chemistry with deep research interest in Dye-stuff Chemistry and Chemistry of Drugs.

Pay Scale are as under

(1) PROFESSOR : Rs. 1500-60 1800-100-2000-125/2-2500.
(2) READER : Rs. 1200-50-1300-60-1600- Assessment-60-1900.
(3) LECTURER : Rs. 700-40-1100-50-1300-Assessment-50-1600.

In addition to pay the teachers of the University Departments are entitled to draw Dearness Allowance, House Rent Allowance and other benefits like Contributory Provident Fund and Gratuity as admissible under rules from time to time.

Information about the qualifications and application form prescribed for each post can be had from the undersigned on payment of Rs. 7/- in Cash or by Postal Order alongwith self addressed envelope of 22 x 13 cm. size duly stamped with Rs. 1.70.

The last date for receipt of the application will be **30-5-1981.**

G.A. Desai
REGISTRAR

BANARAS HINDU UNIVERSITY
FACULTY OF VISUAL ARTS
Admission Notice
1981-82

APPLICATIONS are invited for admission to the I year B.F.A. Course on the prescribed form available from the Office of the Dean, Faculty of Visual Arts, B.H.U., Varanasi-221005, between **1st June, 1981** and **30th June 1981.**

MINIMUM qualification is 10+2 or its equivalent. Maximum age for admission is 21 years as on **1st Oct. 1981.**

Last date for submission of Application Form:	7th July, 1981.
Date of Aptitude Test:	27th, 28th July, 1981.
Test Fee :	Postal order of Rs. 15/- be attached with the admission Form.
Cost of Admission Form:	Re. 1.00 Rs. 5.00 through post.

Dean
Faculty of Visual Arts

DAKSHINA BHARAT HINDI PRACHAR SABHA
HYDERABAD
HINDI SNATAKOTTAR COMPLEX
POST GRADUATE COMPLEX
Adv. No. 10/PGC/80-81

Applications are invited on the prescribed form for the following posts on or before **May 31, 1981** on the following Address: Registrar, Post Graduate Complex, Dakshina Bharat Hindi Prachar Sabha, Khairatabad, HYDERABAD-500 004.

1. **PROFESSOR OF HINDI**
Scale of pay
Rs. 1500-2500+Allowances according to Dakshina Bharat Hindi Prachar Sabha Rules.
Qualifications
A First or High Second Class Master's Degree of a Indian University in Hindi with a research degree in Hindi Literature/Hindi Linguistics. At least ten years Post Graduate Teaching Experience and Experience of guiding research.

2. **LECTURERS IN HINDI**
One for Hyderabad Post Graduate Complex and one for Madras Post Graduate Vibhag.
Scale of pay
Rs. 700-1600+Allowances according to Dakshina Bharat Hindi Prachar Sabha Rules.
Qualifications
A First or a High Second Class Master's Degree and (Ph.D) from an Indian University in Hindi. Knowledge of Hindi-Linguistics will be preferable.

V. Anjaneya Sarma
REGISTRAR

GAUHATI UNIVERSITY
GAUHATI 781014
Advertisement No. 6 of 1981

Applications are invited for the following posts :—

1. **Professor in Geology**
—One post (Permanent post but the vacancy is temporary till 28-2-82)
Specialisation—open
2. **Professor in Bio-Chemistry**
—One post (Temporary—5th plan)
3. **Professor in M.B.A.**
—Two posts (Temporary-5th plan)
4. **Reader in Bengali**
—One post (Permanent)
Specialisation—Bengali Language and Linguistics or Bengali Literature.
5. **Reader in Pol. Science**
—One post (Permanent)
Specialisation—open.
6. **Reader in Mathematics**
—One post (Permanent)
Specialisation—Math. Programming/Algebra/MHD / Math-Logic. Candidate should have one of the above specialisations.
7. **Reader in Anthropology**
—One post (Permanent)
Specialisation—Social Anthropology/Applied Anthropology. Preference will be given to candidates having experiences of doing research and field work in North East India.
8. **Reader in Bio-Chemistry**
—One post (Temporary)
9. **Reader in M.B.A.**
—Three posts (Temporary—5th plan)
10. ***Lecturer in Bengali**
—One post (Temporary)
Specialisation—Vaisnava Literature or Post Tagorean Literature.
11. **Lecturer in Zoology**
—One post (Permanent)
Specialisation—Cell Biology.
12. ***Lecturer in Zoology**
—One post (Temporary)
Specialisation—Fish and Fishery Biology.
13. **Lecturer in Mathematics**
—One post (Temporary)
Specialisation—open.
14. ***Lecturer in English**
—One post (Temporary)
Specialisation—open.
15. ***Lecturer in Philosophy**
—One post (Temporary)
Specialisation—Logic.
16. ***Lecturer in Assamese**—
—One post (Temporary)
Specialisation—M.A. in Assamese B. Group, i.e. Language Group. Preference will be given to one having training or degree in Linguistics. Knowledge of some Tibeto-Burman language and linguistics will be regarded as an added qualifications.
17. **Lecturer in M.B.A.**
—Three posts (Temporary—5th plan)
18. **Lecturer in Linguistics**
—One post (Temporary—5th plan)
19. **System Engineer in Computer Centre.**
—One post (Temporary—5th plan)

20. **Programmer in Computer Centre** —One post (Temporary-5th plan).

Scales of Pay

Professor — Rs. 1500-60-1800-100-2000- 125/2-2500/

Reader—Rs. 1200-50-1300-60-1900/-

Lecturer—Rs. 700-40-1100-50-1600/-

System Engineer—Rs. 1100-50-1300-60-1600/-

Programmer—Rs. 700-40-1100-50-1300/-

* indicates temporary against 5th plan vacancies at the present but likely to become permanent.

All posts carry usual allowances admissible under the University rules in force from time to time.

In case where specialisation has not been mentioned against a post candidates should state their areas of specialisation at the Master's and Doctor's degree levels.

Essential Qualification

Professor—An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at Doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge..

Reader—Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years' experience of teaching and/or research provided that atleast three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

Lecturer—(a) A Doctor's degree or research work of an equally high standard, and (b) consistently good academic record with 1st or high second class (B) in the seven point scale Master's degree in a relevant subject or an equivalent degree of a foreign University. Having regard to the need for developing interdisciplinary programmes, the degrees in (a) 'and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he has been research work for atleast two years or has practical experience in a research Laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Candidates for being eligible for requirement to the posts of Lecturers must have a 1st or high Second Class (B in the seven point scale) at the Master's level and for determining consistently good record, average of 50%—55% may be expected at the two examinations prior to the Master's examination.

Essential Qualifications

(a) **System Engineer**—M. Tech. degree in Computer Science or Post-Graduate Diploma in Computer Science with at least two years working experience with Computer system and requisite training in hardware and software aspects of Computer System.

N.B.—Persons who had already applied for the post of System Engineer in response to the Advertisement No. 3 of 1980 of Gauhati University need not apply again.

(b) **Programmer**—First Class M.Sc. in Physics or Mathematics or Statistics with diploma in Computer Programming and experience in programming in FORTRAN AND COBOL.

Applications in plain paper in six copies giving full bio-data including (1) Name in full (in block letters), (2) Father's name, (3) Date of birth by Christian era, (4) Permanent residence and address (in full) (b) present address (in full), (5) Present occupation if any and name of employer, (6) Present salary drawn (if any), (7) Detailed academic career with marksheets and subjects studied (including Honours) in degree and post graduate courses from Matriculation/Higher Secondary/High School Leaving Certificate Examination onwards and copies/reprints of research contributions, (8) Name and address of two referees not related to candidate together with an application fee of Rs. 10.00 (Rupees ten), (Rs. 7.50 in case of Scheduled Caste/Scheduled Tribe candidates) by CROSSED INDIAN POSTAL ORDER drawn in favour of the Registrar, Gauhati University, payable at the Gauhati-781014 post office should be sent in an inner sealed cover superscribed application for the post of (Name of post applied for) Advt. No. 6 of 1981 enclosed in an outer cover addressed to the Registrar, Gauhati University, Gauhati-781014 to reach him not later than **10th June 1981**.

The number of this advertisement and name of the post applied for must be referred to in the application.

Persons in employment should apply through proper channel or with a no objection certificate from the present employer.

The University has accepted the principle of reservation of posts for Scheduled tribe and Scheduled caste candidate according to the norms of the State Govt. candidates should submit necessary certificate from the Deputy Commissioner/District Magistrate if they belong to Scheduled Caste, or Scheduled Tribe.

Candidates will be required to appear at an interview if and when called for.

Canvassing directly or indirectly will be a disqualification.

M.C. Bhuyan
REGISTRAR

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

Humayunnagar Hyderabad-500028
Andhra Pradesh

Notification

Applications are invited for the following posts in the Constituent Colleges of J.N.T. University so as to reach the Registrar, not later than **5-6-1981.**

1. **PROFESSORS** of
   - (a) Mechanical Engineering—1;
   - (b) Civil Engineering—1 (leave vacancy);
   - (c) Electrical Engineering—1;
   - (d) Physics—1 (leave vacancy).

(Scale of Pay : 1500-2500)

2. **ASSISTANT PROFESSORS** of
   - (a) Civil Engineering—5;
   - (b) Electrical Engineering—2;
   - (c) Mechanical Engineering—2 (One leave vacancy);
   - (d) Mathematics—5;
   - (e) Electronics and Communication Engineering—1.

(Scale of Pay : 1200-1900)

3. **LECTURERS** in
   - (a) Civil Engineering—5 (One leave vacancy);
   - (b) Mechanical Engineering—6 (3 leave vacancies);
   - (c) Physics—1;
   - (d) Architecture—1.

(Scale of Pay : 700-1600) (Rs. 1150-1700 D.A., merged State Scale for Lecturer in Architecture)

4. **ASSISTANT LECTURER** in Photography—1.

(Scale of Pay : 800-1450—D.A. merged State scale).

All the posts carry D.A., H.R.A., C.C.A. as per State Government rules.

Appointments to leave vacancies will be made on a temporary basis only and are liable to be terminated on return of the staff members from leave or even earlier.

Qualifications

(1) **Professors** : (a) Ist Class Master's Degree in the subject of specialisation with consistently good academic record; OR Masters Degree in the relevant subject and a Doctorate Degree in the appropriate field; OR Masters Degree in the relevant subject and published work of a standard equivalent to a Ph.D. OR Masters Degree in the relevant subject and Scientific and Technological work of a high quality

inclusive of R & D Work in an industry or a Scientific establishment. (b) 10 years teaching experience, inclusive of guiding research.

(2) Assistant Professors : (a) A Ist Class Masters Degree with consistently good academic record or Ph.D.; (b) 5 years of teaching experience.

(3) Lecturers : (Except Architecture) A Ist Class Masters Degree with consistently good Academic record.

(4) Lecturer in Architecture : Essential—Ist Class Masters Degree in Architecture. 1 year's professional and/or teaching experience.

(5) Assistant Lecturer in Photography : (a) A Degree in Arts or Science of any University in India established or incorporated by Central Act or Provincial Act or State Act or Institution recognised by U.G.C. (b) Diploma in Photography or in Commercial Art with Photography as one of the subjects or any other equivalent qualification of any University in India established or incorporated by Central Act of Provincial Act or State Act or Institution recognised by U.G.C. (c) Experience of one year either in professional or amateur Photography or teaching in the concerned subject.

AGE LIMIT

(a) Professors—Not more than 45 years (b) Assistant Professors—not more than 35 years and (c) Lecturers and Assistant Lecturers—not more than 30 years, **as on 1-7-1981**.

Note : Age limit relaxable in case of inservice candidates of JNTU. For SC/ST and BC candidates age limit is relaxable by 5 years.

Candidates interested may apply on plain paper to the Registrar, J.N.T. University, Humayunnagar, Hyderabad-500 028 enclosing a Demand Draft for Rs 15/- (Rs. 3/- in case of S.C. and S.T. candidates) issued in favour of Registrar, J.N.T. University, Hyderabad, payable at any of the Scheduled banks at Hyderabad along with the application form, furnishing the following information.

Post applied for; name in full (block letters); postal address to which communications should be sent; date of birth and age; whether belonging to S.C./S.T./B.C., Educational qualifications; experience (teaching and non-teaching); and other information; Signature of the candidate.

Note : Persons who are employed should submit their applications through their employer.
Persons claiming to belong to SC/ST/BC should produce the community certificate from the appropriate authorities.

Late applications will not be entertained. Candidates who have applied in response to this Office notification dated **20-8-80** need not apply again.

REGISTRAR

SAMBALPUR UNIVERSITY

JYOTI VIHAR, BURLA SAMBALPUR

Pin Code : 768017

Advertisement No. 7475/Estt-II

Dated 2.5.81

Applications in the prescribed form are invited for the following teaching posts in the University Post-graduate Departments at Jyoti Vihar, Burla.

1. **Professor**
   Economics—One
   Statistics—One
2. **Reader**
   History—Three
   Home Science—One
   Lib. and Inf. Science—One
   Statistics—One
3. **Lecturer**
   Political Science—One
   Methematics—One
   Anth. and Sociology—Two
   (Social Anthropology—One)
   (Sociology—One)
   Oriya—One (Against a leave vacancy)

Scales of Pay

Professor—1500-60-1800-100-2000-125/2-2500/-

Reader—1200-50-1300-60-1900/-

Lecturer—700-40-1100-50-1600/-

The posts carry usual benefits as per rules of the University.

Qualification : (Professor)

(i) A consistently good academic record with first or high second class Master's Degree in the concerned subject or equivalent foreign degree with Grade B + or 55% marks which may be relaxed in the case of candidates otherwise found suitable.

(ii) Good Academic record with a Doctorate Degree or equivalent published work.

(iii) An eminent scholar with published work of high quality and actively engaged in research.

(iv) Minimum experience of ten years in teaching and/or research out of which at least five years must be in teaching at Post-graduate level as a full time teacher.

(v) Experience in guiding research at Doctoral level. A Professor may be appointed on contract basis for a specified period.

Reader

(i) A consistently good academic record with first or high Second Class Master's Degree in the concerned subject or equivalent foreign degree with Grade B +or 55% marks which may be relaxed in case of candidates otherwise found suitable.

(ii) Good academic record with a Doctorate Degree or equivalent published work.

(iii) Evidence of active participation in research.

(iv) Eight Year's experience of teaching and/or research out of which at least five years shall be as Lecturer in the University P.G. Departments/College at Honours/P.G. level.

Lecturer

(i) A consistently good academic record with first or high Second Class Master's Degree in the concerned subject or equivalent foreign Degree with Grade B+of 55% of marks, which may be relaxed in case of candidates holding a Ph.D. degree.

(ii) A Doctorate Degree or published work of equivalent standard. In case a suitable candidate possessing a Doctorate Degree or equivalent published work is not available, a person possessing a consistently good academic record (due weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed on the condition that he will obtain a Doctorate Degree or produce evidence of published work of equivalent standard within five years of his appointment, failing which he will not be entitled to further increments until he fulfils this requirement.

Desirable

Prof.—Economics—Candidates with M.A./M.Sc. in Statistics securing with B+or 55% of marks at Masters level and having Econometrics/Mathematical Economics as specialisation at M.A./M.Sc. or Doctoral level will also be eligible.

Specialisation

Professor/Reader — Statistics — Inference/Stochastic Process/Operation Research/Information Theory/Probability Theory/Sampling Theory/ Design of Experiments.

Reader—History—Ancient Indian History and Regional History. Diploma in Museology/Archaeology or equivalent work in the field of collection of antiquities and archaeological excavation will be preferred for two posts.

Reader—Lib. and Inf. Science—Information Science

Seven copies of the application forms will be supplied from the University Office to each candidate in person on cash payment of Rs. 15/- (Rupees fifteen) only. Candidates intending to receive forms by post are required to send (a) Crossed Postal Order of Rs 15/- payable to the Finance Officer, Sambalpur University, Jyoti Vihar, Burla (b) a self addressed envelope (23 cm x 10 cm) with postage stamps worth Rs 3.30 p. affixed to it with the words "APPLICATION FORM FOR TEACHING POSTS IN SAMBALPUR UNIVERSITY" superscribed on it. Money Order/Cheque will not be entertained.

The last date of receipt of applications in the Office of the University at Jyoti Vihar, Burla Sambalpur (Orissa) is 30-5-81. The candidate will be required to appear for an interview before a Selection Committee at their own expenses.

N. Mohapatra
REGISTRAR

VIKRAM UNIVERSITY
UJJAIN

No.Dev./81/Estt./Advt./428
Dated : 30-4-1981

Advertisement

Applications, on the prescribed forms available from the University Office on payment of Rs. 5/- in cash or by M.O./I.P.O. payable to the Registrar, are invited for **One Post of Professor each in Botany and Zoology and One Post of Reader in Economics** for the University Schools of Studies in the subject concerned.

2. Pay Scale

(i) Professor—Rs 1500-60-1800-100-200-125/2-2500.

(ii) Reader—Rs. 1200-50-1300-60-1900.

3. Qualifications for Professors and Readers

(a) (i) A Doctor's Degree or published work of an equivalent high standard; and

(b) (i) A Second Class Master's Degree in a relevant subject with atleast 50% marks (B in the seven point scale) or an equivalent Degree of a Foreign University; and

N.B.: (While taking into account the marks/grade, the marks/grade obtained in internal assessment, if any, shall be excluded).

(ii) Atleast 50% marks at the Bachelor's Degree examination on the basis of which division is awarded at the Degree level by the University; and

(iii) Atleast 50% marks at the Higher Secondary/Intermediate/Pre-University examination, as the case may be.

AND

(c) (i) In the case of Professor the experience of teaching of post-graduate classes shall be atleast 10 years and in the case of Readers the experience of teaching post-graduate classes shall be atleast 5 years; and

(ii) In case of Professors, evidence of candidate/s having been awarded a Doctor's Degree under his supervision and in the case of Reader, atleast three years experience of guiding research.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published research work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

N.B.: The requirement regarding minimum percentage of marks shall be relaxed upto 5% in case of Scheduled Castes/Scheduled Tribes candidates.

It will be open for the University to consider the name of any eminent person distinguished in Scholarship who may not have applied for the post.

4. Specialisation

Candidates for the post of Professor in Zoology should possess the specialisation in Fish and Fisheries.

All appointments will be on probation for two years in the first instance. Superannuation age is 60 years. In addition to pay, the above scales carry, additional dearness allowance and the benefit of contributory provident fund (after confirmation) as per rules of the University in force from time to time. Higher start is possible to deserving candidates.

Scheduled Castes and Scheduled Tribes candidates will be given preference, if found suitable.

Applications complete in all respect and accompanied with Crossed I.P.O. of Rs 7.50 np for the post of Professor and Rs 5/- for the post of Reader payable to the Registrar, Vikram University, Ujjain should reach the undersigned on or before **25.5.1981.** The envelope containing application form, should be marked "Application for the post of Professor/Reader in the School of Studies in ————.

Applications received after the last date or not on the prescribed form or without the prescribed fee will not be considered. Candidates already in service should apply through proper channel. Candidates called for interview will have to attend the same at their own cost.

The University reserves the right to fill-up or not to fill-up any post advertised and/or to call only selected candidates for interview.

J. P. Singhal
REGISTRAR

MEERUT UNIVERSITY
MEERUT

Applications are invited for the following teaching posts sanctioned by the University Grants Commission for the Department of Agricultural Botany under VI Plan :

(1) **READER** : Three posts of Readers in Agricultural Botany in the grade of Rs. 1200-50-1300-60-1900.

Minimum Qualifications

High academic career with a Ph.D. or higher research degree and having atleast 5 years research/teaching experience in a University or a recognised Institution, should have distinguished himself as a researcher and should have competence to give post M.Sc. courses and guide research.

Area of Specialization

Preference will be given to candidates having experience in Biometrical genetics/Biochemical genetics Genetics and Plant Breeding, Agronomy with specialization in crop production/yield structure analysis.

(2) **LECTURER** : Two posts of Lecturers in Agricultural Botany in the grade of Rs. 700-40-1100-50-1600.

Minimum Qualifications

M.Phil in first division, or a first class in High School, Intermediate, Degree and Post-graduate examinations or first class post-graduate degree or M.Phil with a Ph.D. degree or an average second class career taking into consideration High School, Intermediate, Degree and Post-graduate examinations with a Ph.D. degree.

Area of Specialization

Preference will be given to candidates having experience in Plant Pathology/Crop Physiology.

Note

For the above mentioned posts of Readers in Agricultural Botany and Lecturers in Agricultural Botany other things being equal, preference will be given to Schedule Caste/Tribe candidates who are considered fit. Such candidates should indicate in their application that they belong to Schedule Caste/Tribe and attach certificate to that effect from the District Magistrate of the District to which they belong. No other certificate for this purpose will be entertained.

Application on the prescribed form, available on request (accompanied with a self addressed envelope of size 23 x 10 cm and stamped for Re. 0.80 p.) free of cost, from the Assistant Registrar (Academic), Meerut University, Meerut with relevant testimonials, publications etc. accompanied by a Bank Draft of Rs. 7.50 payable to the Finance Officer, Meerut University, Meerut, should reach the Registrar, Meerut University, Meerut by **4th June .1981** The candidates who are in service must send their applications through proper channel. Application forms to out station candidates will be issued by post upto **30th May, 1981.**

V.B. Bansal
REGISTRAR

UNIVERSITY OF JAMMU
SITUATION VACANT

Applications on prescribed form are invited for the following posts so as to reach the undersigned on or before **30th June 1981**.

1. **Reader** (Rs. 1200-1900) in Botany (Limnobiology)—One Post.
2. **Lecturers** (Rs. 700-1600) in Economics (International Economics/Economic theory)—One Post; Physics (Experimental Solid State Physics preferably in X-Ray Crystallography or in Crystal defects or materials studies or in allied branch)—One Post.

For full details and prescribed form please apply by sending a self addressed envelope of 25 cm x 10 cm size bearing postage stamps worth Rs 1.50 paise alongwith a crossed postal order of Re. 1/- drawn in favour of the Registrar, University of Jammu, Canal Road, Jammu (Tawi)—180001, cashable at Jammu post office.

J.R. Rathore
REGISTRAR

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI

Advt. No. Acad. III/4/81

Applications are invited for the following posts :

I. SCHOOL OF LANGUAGES

Centre of Linguistics and English

1. Assistant Professor of English Language and Literature (Leave vacancy)

Essential Qualifications

(a) Consistently good academic record with at least a high IInd class Master's degree in a relevant discipline or its equivalent qualification from an Indian/foreign University; and

(b) A doctor's degree or published work of an equally high standard.

Area of Specialisation

English Literature (20th Century Novel) and English as a Foreign Language.

II. SCHOOL OF SOCIAL SCIENCES

Centre for the Study of Regional Development

2. Professor/Sr. Fellow of Geography (Temporary against leave vacancy for about two years)

Essential Qualifications

(i) Consistently good academic record with at least a high second class Master's degree in Geography or an equivalent qualification from an Indian/Foreign University.

(ii) A doctor's degree or published work of an equally high standard; and

(iii) About ten years' experience of teaching and/or research.

Desirable Qualifications

Experience of research in some aspect of the Geography of regional development in India and adequate knowledge of modern techniques of analysis in Geography.

3. Assistant Professor in Geography

Essential Qualifications

(a) Consistently good academic record with at least a high 2nd class Master's degree in Geography or its equivalent qualification from an Indian/Foreign University; and

(b) A doctor's degree or published work of an equally high standard.

Desirable Qualification

Proven research interest in Social Geography of India.

Zakir Husain Centre for Educational Studies

4. Assistant Professor (Temporary against leave vacancy for about one year)

(a) Consistently good academic record with at least a high 2nd Class Master's degree in Sociology or its equivalent qualification from an Indian/Foreign University; and

(b) A doctor's degree or published work of an equally high standard.

Area of Specialization

Sociology of Education.

Desirable Qualifications

(a) Some teaching experience at the post-graduate level in any University or Institute.

(2) High aptitude for, and ability to guide research in Sociology of Education.

III. SCHOOL OF COMPUTER AND SYSTEMS SCIENCES

5. Assistant Professor—3

(2 regular, 1-temporary against leave vacancy)

Essential Qualifications

(a) Consistently good academic record with at least a high 2nd Class Master's degree in a relevant discipline or its equivalent qualification from an Indian/Foreign University; and

(b) A doctor's degree or published work of an equally high standard.

Areas of Specialization

(i) Decision and Optimisation Theory (for the first post)

(ii) Numerical Analysis (for the second post)

(iii) Simulation and Modelling (for the third post—temporary against leave vacancy)

Desirable Qualifications

(a) Some teaching experience; post doctoral research experience.

(b) Background in the general area of computer Software and application.

Provided that in the case of Assistant Professors if the Selection Committees are of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (a) above.

Provided further if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable a person possessing a consistently good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he/she has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Scales of Pay

1. Professor/Senior Fellow

Rs. 1500-60-1800-100-2000-125/2-2500.

2. Assistant Professor

Rs. 700-40-1100-50-1600.

Relaxation in any of the qualifications may be made (a) in favour of persons of eminence or of high academic/professional distinction and (b) in exceptional cases where adequately qualified persons are not available but are otherwise found suitable for the respective positions. It will also be open to the University to consider the names of suitable candidates who may not have applied.

The selected candidates will be expected to participate in the teaching and research programmes in the concerned disciplines in other Schools of the University as well as in the programmes offered in their own Centres of Studies.

Benefits of C.P. Fund-cum-Gratuity/G.P. Fund-cum-Pension-cum-Gratuity are available as per University rules.

Persons already in employment should route their applications through proper channel.

Due consideration will be given to candidates belonging to Scheduled Caste/Scheduled Tribe at the level of Assistant Professor.

Second class (mail) rail fare (both ways) will be paid to candidates invited to appear for interview from outstation by the shortest route.

Applications separate for each post, on the prescribed form, obtainable free of cost from the Section Officer (Acad. Branch-III) of the University by sending him a self-addressed and stamped envelope (affixing postage stamps worth Rs 02.85) of 23 cm x 10 cm size, should reach the Deputy Registrar (Academic), Jawaharlal Nehru University, New Mehrauli Road, New Delhi-110067, latest by 11.6.1981.

Candidates from abroad, applying for the faculty positions, may apply on plain paper, (but their applications should reach the University by the last date) furnishing all the relevant informations such as their name; date and place of birth; marital status, nationality, state of domicile, postal and permanent addresses, father's name and address, academic and professional attainments; full details of (a) publications, and (b) research projects undertaken; language(s) known; details of visits to foreign countries, and the names and addresses of at least two persons well acquainted with the candidate's professional work who should also be requested by the candidate to forward to the Deputy Registrar (Academic) confidential report concerning the candidate.

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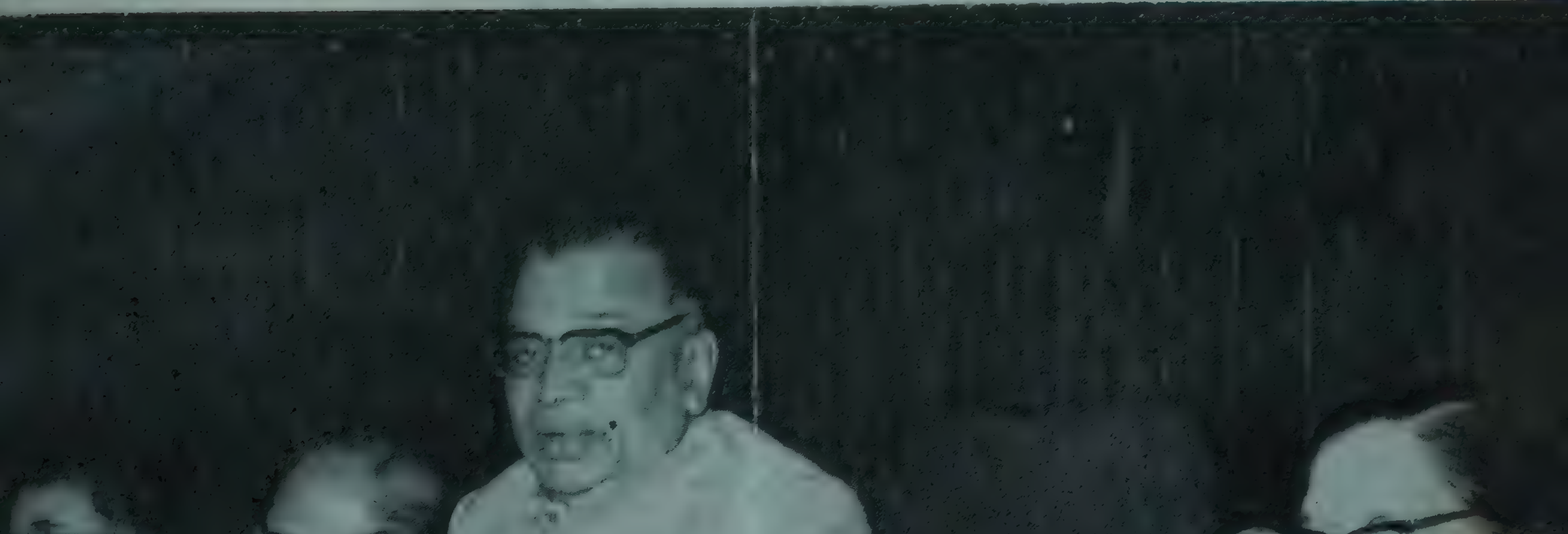
University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH JUNE 15, 1981

I.R.I., M

VCs Conference



Shri S. B. Chavan, Union Education Minister, addressing the inaugural session of the Vice-Chancellors' Conference held recently in New Delhi. Seated on his left is Dr. (Mrs) Madhuri R. Shah, Chairman, UGC.

ASSOCIATION OF INDIAN UNIVERSITIES PUBLICATION

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI

Advt. No. Acad. III/6/81

Applications are invited for the following posts :

I. SCHOOL OF SOCIAL SCIENCES

Centre for Political Studies

(1) Associate Professor/Fellow in Political Science.

Essential Qualifications

1. Consistently good academic record with at least a high second class Master's degree in Political Science or its equivalent qualification from an Indian/Foreign University;

2. A Doctor's degree or published work of an equally high standing; and

3. About five years experience of teaching and/or research.

Areas of Specialisation

Contemporary Political Analysis;
Political Parties;
Indian Political Process

II. SCHOOL OF LANGUAGES

Centre of French Studies

(2) Assistant Professor in French

Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's degree in French or its equivalent qualification from an Indian/Foreign University; and

(b) A Doctor's degree or published work of an equally high standard.

Desirable Qualifications

(i) Experience in teaching French through audio-visual means; or

(ii) Experience in teaching francophone literature.

Centre of African and Asian Languages

(3) Assistant Professor in Japanese (temporary against leave vacancy).

Essential Qualifications

(a) Consistently good academic record with at least a high IInd class Master's degree in Japanese or its equivalent qualification from an Indian/foreign University; and

(b) A doctor's degree or published work of an equally high standard.

Desirable Qualifications

(i) Some experience of teaching translation.

(ii) Knowledge of teaching methods through lang. lab/audiovisual.

(iii) A good background of Japanese literature and Culture.

Provided that in the case of Associate Professors if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (1) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed **provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition** that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments, until he fulfils these requirements.

Scale of Pay

1. Associate Professor/Fellow
Rs. 1200-50-1300-60-1900.

2. Assistant Professor
Rs. 700-40-1100-50-1600.

Relaxation in any of the qualifications may be made (a) in favour of persons of eminence or of high academic/professional distinction, and (b) in exceptional cases where adequately qualified persons are not available but are otherwise found suitable for the respective positions. It will also be open to the University to consider the names of suitable candidates who may not have applied.

The selected candidates will be expected to participate in the teaching and research programmes in the concerned disciplines in other Schools of the University as well as in the programmes offered in their own Centres of Studies.

Benefits of C.P. Fund-cum-Gratuity/G.P. Fund-cum-Pension-cum-Gratuity are available as per University rules.

Persons already in employment should route their applications through proper channel.

Due consideration will be given to candidates belonging to Scheduled Caste/Scheduled Tribe at the level of Assistant Professor.

Second class (mail) rail fare (both ways) will be paid to candidates invited to appear for interview from outstation by the shortest route.

Applications separate for each post, on the prescribed form, obtainable free of cost from the Section Officer (Acad. Branch-III) of the University by sending him a self-addressed and stamped envelope (affixing postage stamps worth Rs. 02.85) of 23 cm x 10 cm. size, should reach the Deputy Registrar (Academic), Jawaharlal Nehru University, New Mehrauli Road, New Delhi-110067, latest by 15.7.1981.

Candidates from abroad, applying for the faculty positions, may apply on plain paper, but their applications should reach the University by the last date furnishing all the relevant informations such as their name, date and place of birth, marital status, nationality; state of domicile, postal and permanent addresses [illegible] and address, academic and professional attainments, full details of all publications, and the research projects undertaken, language(s) known, details of visits to foreign countries, and the names and addresses of at least two persons well acquainted with the candidate's professional work who should also be requested by the candidate to forward to the Deputy Registrar (Academic) confidential report concerning the candidate.

NEW EDUCATION SOCIETY

JABALPUR

Applications are invited for the post of Principal in N.E.S. Science College, Jabalpur in the scale of Rs. 1100-1600/- plus usual allowances.

Qualifications

(a) A Doctor's degree or published work of an equivalent high standard.

(b) (i) A 2nd class Master's degree with atleast 50% marks (B in seven point scale) or an equivalent degree of a foreign University.

(ii) At least 50% marks at Bachelor's degree examination.

(iii) At least 50% marks at the Higher Sec./Intermediate/pre-university examination.

(c) (i) The experience of teaching of post-graduate classes shall be at least 5 years.

(ii) At least two years experience of working as professor.

(iii) At least 3 years experience of guiding research.

Note : The requirement regarding minimum percentage of marks shall be relaxed upto 5% in case of S.C./S.T. candidates.

Age limit : 45 years (the limit will be relaxed in case of society/Govt. employees/Univ. upto 5 years).

Note : The persons not having above minimum qualifications need not apply.

The applications should reach by **15th July, 81** on the following address by **Registered Post** :

'Administrator, New Education Society Science College, Gorakhpur, Jabalpur (M.P.).

Administrator
New Education Society
Jabalpur

GAUHATI UNIVERSITY

Corrigendum

Advt. 16.6 of 1981

Read item No. 5 Reader in Political Science—On post (permanent) specialisation—"International Relations including Indo-Bangladesh Relations" instead of Specialisation "Open".

UNIVERSITY NEWS

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No. 12 1981

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Editor : ANJNI KUMAR

Perspectives in Higher Education

Rais Ahmed*

A negative view of education has become common— both in the sense of finding fault with every aspect of education and of pessimism regarding the implementation of educational reforms. We express dissatisfaction with the structure of education, with the functioning of educational institutions, with the behaviour of teachers as well as students, and with the standards that are said to prevail. Some go so far as to blame education even for the maladies whose focus lies outside education, for example disorder in institutions which is to a large extent a part of the general social scene, or unemployment which is related to the slow rate of growth of the economy. The slow and sluggish pace of educational reform has made some of us feel so disheartened, that we tend to give up any hope of change—notwithstanding the fact that some others believe that there have been too many and too rapid changes since independence—and which have been, mostly, ill-conceived. I would first like to dispel the gloom—or at least introduce a felicitous note in it by briefly mentioning the positive side of happenings in the field of education and providing a context in which our difficulties are to be seen. I believe that only by taking a balanced and realistic view, can we combine healthy criticism with a vigorous effort to identify the main thrusts of future action. Not doing so would result in what is happening namely all round criticism, seeming urge for major change combined with determined resistance to any actual change.

The positive contribution of education, especially higher education to our national development is so obvious that if it were not for the prevalent self-denunciation on our part, I would not have even mentioned it. We have thousands of institutions producing doctors, engineers, scientists and other personnel of the highest competence required to man our industry, commerce, services and major agencies of applied research. No other developing country can boast of such indigenous resource of training and education. Since the sixties, we have not had to depend on foreign higher education for almost any branch of learning. In fact, as everyone knows, we have had what is called brain drain, that is even advanced countries welcome and employ highly educated personnel from India. The other developing countries have, of course received tremendous assistance from Indian doctors, engineers, educators, technicians and other specialists in setting up their institutions. Perhaps our educational institutions have played a major behind-the-scene part in the establishment of goodwill with many of these countries, and by raising the prestige of Indian know-how, helped our own industry and trade in relation to these countries. A more spectacular demonstration of the strength of this infra-

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**Professor of Physics, Aligarh Muslim University* structure has been witnessed in the fields of agriculture, atomic energy and space. No matter how much some others may beg borrow or steal processes and materials, they cannot match the self-reliant growth of science and technology which we are in the process of achieving.

The educational programmes which are the foundation of the capabilities I have just mentioned are a result of development of courses and syllabi which are fairly uptodate in the various disciplines. There has been sustained discussion of the content in the light of international experience and the need to draw abreast with the best in the world. In the vast network of our colleges and universities there is now a much greater awareness of the fundamental problems of teaching and examinations. Educational materials and equipment have been developed which are as much in demand abroad as our experts —and only if a corresponding publication and manufacturing programme were undertaken by a public sector enterprise, we would have earned considerable foreign exchange and established academic bridgeheads of our own in the developing countries of Asia and Africa.

At a superior level—in our educational institutions—there is very considerable innovative and creative activity. Research is well developed and scholars in the universities have produced cost-effective results. Being centres of a multi-faculty nature, there are even greater opportunities of utilizing the research potential of the universities in national development. Thus we have not to be pessimistic on account of the performance of our educational system, but certainly the possibilities are far greater if only we raise our sights and also examine our problems in their true nature and context.

What holds us back

(*i*) *Achievement becomes a problem*: One of the most prominent features of our educational system has been its tremendous expansion by a factor of almost 15 in a span of 34 years since independence. Such a rate of expansion is perhaps unparalleled in the history of any country and it has been partly by design, to meet the manpower needs at the highest level, and partly because of the spontaneous urge of our people to overcome the lag of centuries in a few decades and; in a more mundance sense, to grab the opportunities in a rapidly diversifying and developing social and economic order. Although the rate of expansion has slowed down, it is still with us, and although much is being said about consolidation and the need to restrict admissions the social and political pressure are still found to be irresistable. This unprecedented expansion manifests itself in the form of unemployment of the educated since it has by far outstripped the general rate of growth of the economy. It has also resulted in the student body of the colleges and universities being constituted by a very large fraction of those whose motive is not so much to benefit from the intellectual opportunity provided by the institutions as it is to get a degree at any cost and by any means so as to possibly get a job. Consequently the examination has become more important than what goes before it—indifferent students undermine teaching, throw the accompanying evaluation out of gear by pressurizing to be given undeserved grades, agitate for the postponement of the exams and often tend to use unfair means to pass them. Thus the good student tends to be swamped by the indifferent and the very symbol of the traditional authority of the university to certify and grade students tends to be sullied. The vast expansion has consumed funds and sometimes it is wrongly concluded that higher education is the enemy of lower levels of education as also of the education of the increasing number of illiterates. Yes, it has taken the lion's share of the allocation but then the expenditure per student enrolled in the colleges and the universities has gone down! The fact is that the other pressing needs of a poor country have to be met, and if education is not supposed to play a part in meeting these needs, its share of the allocation will have to be restricted, even though the allocation itself may be insufficient. And insufficient it is, because the 34 years of independence have also been years of social and cultural advancement, people now wear slightly better clothes, live in a slightly different manner, expect amenities and recreation at a slightly higher level than before. We experience it in our homes and in the life around us—and it means greater expenditure per head for a normal life. The institutions are still financed on norms that are impracticable today, and as a result there are problems born out of frustration. Not only has the dispensation of education —the so called "method of teaching" remained at a standstill with almost total reliance on the lecture by a teacher, but also other avenues of engagement and expression such as a vigorous programme of games and sports, or of art and culture which could possibly have attracted and absorbed the academically less motivated, or those who possessed talent of a non-intellectural kind, have remained neglected. Ours is the case of a country which has the innate talent and therefore has evolved a system large enough to cater for the developmental needs of several countries but which has to bear the burden alone and cannot afford to modernise and enrich education in keeping with the demand of the times.

(*ii*) *Research at a discount*: If the pressure of numbers, particularly of the unmotivated, and the force of tradition kept teachers from acquainting themselves with and adopting newer media and methods of interacting with their students, it was straight government policy which adversely affected research in the universities until very recently. In the colonial period there was almost no research activity in the universities or elsewhere, but during the war and immediately after independence Government decided to develop applied sciences so as to support the war effort, or later, local industry, agriculture, atomic energy and defence, and in this connection a conscious decision was taken to start a series of laboratories outside the university system. It led to financial and manpower inputs in these laboratories which doubly hurt the possibilities of developing scientific research in the universities. However the irrepressible urge of creative work and enquiry, even with meagre inputs has sprouted in numerous institutions of higher education and today a vast human resource and multifaculty infrastructure exists there carrying out both pure and applied research. The criticism regarding the limited scale of individual research projects, and about inability to undertake research on problems of deep significance is really to be taken as a criticism of the low level of support made available to the universities—which stands at just a few per cent of the total expenditure on research. The factors which handicap the universities in research also handicap higher education since the laboratory, the library and the maintenance and fabrication facility created for research plays an important role, just as research minded staff does, in determining the quality of training of the graduates. In the social sciences and humanities the handicaps are not similar and not attributable to conscious policy but they are more diffuse and arise from many social and cultural circumstances.

(*iii*) *Social and political circumstance*: Educational institutions being a mirror of the rest of the social system are subject to the general malaise of weak and inefficient administrations, a certain measure of lack of morality, and of pressure politics. Students have a streak of idealism and emotionality, and are relatively innocent in judging social behaviour. They are not alert to hypocricy and double talk and are carried away by momentary and sometimes insignificant issues raised by interested or dissatisfied groups. Opposition parties often find it convenient to disturb the educational institutions for the problem it creates for Governments and adverse publicity which it brings them through juicy newspaper coverage. There are allegations of money being used, and future leaders being cultivated and groomed in the process. Governments often find it impossible to take clear and principled stands—they are unable to resolve a problem sometimes for fear of the effect it might have on the vote in the elections which are always round the corner for one thing or another. The distrubances in the educational institutions which are half the time due to a rigid following of unimaginative or unrealistic rules and procedures are other half of the time due to exogenous conditions. Some believe that these conditions arise from our very laudable pursuit of distributive justice through democratic means. We have'nt the wherewithal to rapidly ameliorate the economic conditions of the poor—it requires at least material goods which can only be produced over a period of time—which in turn is not appreciated by those who are the deprived and whose expectations have been roused by the processes of democracy itself. Situations arise in which one has to deal with people who have shed their feudal and traditional bonds and attitudes particularly to authority but who have'nt as yet got the restraints of education and discipline which govern democratic behaviour. The system finds itself rather helpless in the face of the bully or the corrupt, and runs into one crisis after another. According to this point of view which may well be true we should only realise that the educational hiatus is a part of the general dilemma and therefore there is no ready or specific solution for it. We must plan our actions of the assumption that we will have to live for some time with these conditions—with minor ups and downs depending on administrative or legal acuity.

Appropriate education : A challenge

One can indeed view the whole thing as a challenge to new educational thinking. Amongst the developing countries, with such a massive poverty and illiteracy ours is the only country which has undertaken to bring about an economic revolution with democratic means; we have evolved a system of education which has the potential to integrate education with developmental activity and to divest itself of its traditional handicaps so as to serve as an instrument of hastening us along the roads to a new society. In other words we can see before us the task of generating what may be called an appropriate system of education (national in its managerial and academic characteristics) which will fit in with our rapidly changing society; a system whose tremendous creative capabilities could be harnessed for human and natural resource development which may enable the larger objectives of our society to be achieved. In this connection my view is that we must now look beyond the recommendations of the Education Commission which were made when the problems of growth and awakening had not yet been thrown up as fiercely as now, when it appeared that national development would be a rather smooth and planned process in which education would have to play a part, when it may be said that the forces of resistance from within the educational set up and in society at large had been underestimated. I believe a debate may be held on the features which we must promote, but I would like to underline tentatively what appears significant to me. I have no illusions regarding how difficult it would be to bring about the seemingly simple developments, but the time scale in which anything is achieved is such that in a decade or two we may expect results, if a persistent effort is made.

The features which ought to be promoted lie generally in two broad spheres—one of management and the other of academic life.

Linkages and structure in Higher Education

In management, I believe the general style to be promoted ought be democratic, genuinely participatory and interactive. The educational scene in India is so varied from state to state and institution that no single prescription or model is valid for all situations, but if one examines the largest common factor it is not difficult to outline the direction of managerial change.

(*i*) *State level committees*: Firstlaty, the apex, the State Governments and particularly their Deppartments of Education should agree not to leave important financial and academic decisions entirely in the hands of a few officials many of whom are not aware either of the varied kinds of financial flexibility needed for the proper running of a university, or even of the importance or priority education has for human and national development in the welfare society we wish to establish. Numerous state universities are starved of funds, and because of this they keep on running into minor crises frequently, which sometimes fester into major agitational issues on the part of teachers, or karamcharis or students. Institutions whose budgets sometimes run into crores are often not provided the flexibility to create minor posts or to incur minor unscheduled or unheaded expenditures. It is frequently complained that even approved budgets cannot be operated without constant favour of the officials in the Departments of Education. This position must be altered without delay by the creation of suitable mechanism either of a state level grants committee, or a high powered advisory committee—and certainly by changing procedural rules. We must discover a way which will ensure funds, provide flexibility, actually make them available and still have the right checks. The procedures and checks which may be suitable for subordinate government departments are just not suitable for the universities.

(*ii*) *Links with development departments, subregional forums*: Our notion of extension being a part of educational programmes, or of concern of the university with the community or even of education's orientation towards vocations, cannot be put into effect without providing links between educational institutions and the development departments of the Government. Effective work experience at school and field work at school and college such as participating in health and hygiene programmes, family welfare activities, surveys of nutritional needs or energy requirements in rural areas etc. cannot be carried out without corresponding Government departments integrating this activity in their own programme of work. Vocational education in its great variety, as is well known, can neither be carried out entirely by wholetime paid teachers, nor entirely at the site of the schools and colleges—and coordination at the initial survey level as well as the operational level requires the concerned Government departments to come into the picture. Take another instance. It is emphasized in our plan documents that research into social, scientific and technical problems which prevent the growth of industry, agriculture or myriads of services needed at the regional level can be effectively carried out between the universities and other laboratories and agencies in the concerned region and this too requires the involvement and support of the Government and its development departments. Thus suitable mechanisms at the block, district, subregional and regional levels have to be set up consisting of educational, research, professional and relevant administration to ensure harmonious, coordinated and effective action on these fronts. Thus in keeping with the new democratic and popular orientation, and in keeping with the new concept of the role of education and research, these mechanisms ought to replace the isolated and hence less efficient functioning of the instruments of growth and development.

(*iii*) *Redefinition of autonomy*: Thirdly, again in the sphere of governments and community's link with educational institutions—the sensitive question of autonomy of the universities has, in my opinion, to be carefully re-examined and clearly enunciated in the new context—perhaps by Parliament, so that there is better appreciation of the meaning and scope of this aspect by all concerned. The word and the concept are rather loosely bandied about to suit sometimes the politician, at other times the student or the authorities concerned. We all agree that absolute autonomy is not possible and does not exist anywhere; on the other hand we also agree that educational institutions must interact with society and government for better education and greater social effectiveness. The ivory tower and the concept of insularity between society, and its apparatus of governance and society's own educational institutions was a product of times when an individual's mental development was the sole concern of education, when social involvement was almost non-existent and, I would even say, when in India, only the upper classes who were generally well satisfied with society benefited from higher education, when therefore politics could be almost shut out from the institutions. Those were also the times when the university's authority within the institution was respected making external intervention generally unnecessary. I would stretch the point a little to say that education was then more comparable with brain washing—the teacher lectured, gave an exposition according to how he understood and interpreted social and scientific phenomena, the students discussed and perhaps disputed a little, and ultimately learnt to say what the teacher wanted—at least so as to pass the exams. This has changed and must change further, as I shall mention when discussing academic aspects—but the change is towards making education more down to earth, cooperatively learning from and acting on social and scientific reality, and forming different and even divergent views of how things happen. This is the essence of freedom, and it requires interaction and participation—therefore indicates the need of a new equilibrium with society, and its facets including Government.

It is also our practical need to discover a more realistic relationship—to spell it out and to establish it unless we are reconciled to ad-hoc and often illadvised invasions of what is considered university autonomy, by various State Governments when they grow impatient with the system and want to reform it in one stroke.

(*iv*) *Internal institutional management*: No less important in the sphere of managerial changes which are necessary are those within the university system. That the present structure of governance is outmoded can be seen from the fact that in many universities convocations have not been held for years, the university courts have not met for long periods, and mechanisms to have the university's own decisions enforced do not exist. Todays universities cannot be run on highly centralised lines—like they were in the times when no one could question the authority of the Vice-Chancellor or indeed the Principal and the Headmaster. Universities with thousands of teachers and other employees, with numerous Departments/Centres/Institutes and Laboratories, some with vast agricultural land and the labour to work on it, many with facilities such as printing presses instrumentation centres and computers which have to be run partly on commercial lines, with vast housing complexes and hostels having municipal problems to say the least, cannot be run simply by executive councils consisting of a few teachers and itenerant members who have no first hand knowledge of local problems. Again a university system in which individual departments tend to consist of scores of members of staff and research scholars, often with research funds running into tens of lakhs, and owing responsibility to—a number of national and international organizations—cannot be run with authority for practically everything lying with the Registrar or the Vice-Chancellor. Furthermore if involvement in regional research problems and community oriented activities is to be a part of university's work, and in particular, if academic accountability is to be introduced in the universities, new forums and responsibilities will have to be spelled out. There is therefore urgency in evolving a system of university governnace and management which is democratic and decentralised and has adequate provisions for enforcing decisions of its various bodies.

Content and method

(*i*) *Diversification of programmes*: It is in the sphere of what are called academic programmes that we find the prevalence of the most traditional, old fashioned and ineffective ways in our universities and colleges. It is here that the contradiction between superficial talk and real belief, and therefore action, becomes most glaring. We talk about the diversity of courses, in keeping with the plurality of student need in our institutions but in fact all the courses available in the university system are essentially of the same character. There are differences only in detail, but neither in objective nor in approach nor even in the manner of interacting with the students. Each course attempts to make a scholar out of every student, even though it is known that a majority of students join the universities to get a degree and not to become scholars. The approach to make a scholar, at best, is through intense lecturing about every detail of the syllabus while students are keen only to answer a selected set of stereotyped questions, otherwise they often refuse to sit for the exams claiming that the questions are either out of course or otherwise unexpected. This is indeed, in the first place, because of a dead uniformity in the structure of the university system throughout the country which makes every institution to fall in line in the form and content of the courses. In a large and democratic country with a multiplicity of cultures and individual needs of those registering with the universities we do not have anything like the private liberal arts college of the United States where sometimes broad education is through diverse routes for example through the great classics, or participation in creative art, or participation in community based activities. We do not yet have the equivalent of their thousand or so junior colleges and community colleges—which provide the much needed short-cycle units for those who are not being ostensibly prepared for scholarly careers.

I believe that while our system has greatly expanded, we must now strive to creative institutions with different characters so as to absorb the heterogeneous clientele, to respond to new and changing demands from the employment market. In this category would come numerous one to two year vocational courses, to carry on idependently or from the point where +2 vocational studies leave off. The avowed purpose might be to prepare students for self employment according to their inclinations or the forecasted needs of the development plans—the scholarly pretension will be minimal and functionality would be maximised. There could be other colleges where stress would be on sports or physical education, or on various cultural activities from music and drama to making of advertisement or feature films, or still others where stress will be on community or rural development activities. I believe it is our overzealous pursuit of academic courses that has lowered our performance in games and sports, and has created paucity of art teachers throughout the school system. A degree obtained on the basis of such training and education, although very different from that of a common college these days, should be considered equivalent for employment. Naturally, such colleges would have to be structured on an entirely different basis from the present ones; they would probably not have full time paid staff, and in some colleges students could earn while they were learning and practicing. An outlet of this kind, with attractive facilities obtained, perhaps, by the conversion the presently non-viable colleges, may indeed take away a large number of what we have been calling unmotivated students—because their motivation is not scholarly although they would be keen to spend their time in an equivalent college which provided a fare which may be more interesting or useful to them.

(*ii*) *Stress on real learning*: Too rapid an expansion of our system of higher education and therefore struggling with excessive teaching loads and trying to keep abreast in research, played another kind to havoc with our colleges and universities the fruit of which we are now reaping. And it is that we have continued to treat our students as if they were inert recepticles of knowledge, which a learned teacher had to pour into them—and we have continued to subject them to so called external and objective examinations to see how much they had retained of that knowledge and understanding. In spite of discussions about the grave shortcomings of such an approach to education, our deep seated belief in the efficacy, of the system remains unshaken, and now even the students and the public have come to repose their confidence in such a system. It would be no exaggeration to say that the examination and certification roles of the university have come to dominate all other roles, and things have gone so far that in quite a few institutions examinations are held without completing the courses and in some institutions copying in the examination is being resorted to on a large scale. The educational aspirations of our people, and the necessary role of education in the development of the country, are thus being negated. If things are allowed to drift, the whole infrastructure whose role in our achievements has been mentioned earlier, will become counterproductive.

Fortunately the remedy for this situation lies, to a large extent, with the teachers. Their understanding of the processes of learning and evaluation could transform their practice. Their emulation of the best in the world in respect of their own art could save the situation. It has to be realized that people do not learn simply by being told, or lectured to—for learning, they must participate in the process by reading for themselves, by undertaking small and large enquiries either through libraries, laboratories or in the field, by discussing ideas with fellow students and teachers, and by formulating ideas in their own words in reports or term papers so that they are subjected to the scrutiny of others. Unless therefore, lectures are reduced to the minimum, and the teacher becomes a facilitator to provide opportunities of learning in the sense just mentioned, our students will continue to be bored by the lengthy expositions, and will to cut classes, undertake other questionable activities during the term and resort to mugging up for the examinations.

(*iii*) *Evaluation and standards*: The carefully considered and well designed assignments which will provide learning to students in different measures, according to their gifts, can certainly be evaluated but not necessarily by the end-of-term examinations conducted by outsiders. Teachers alone, by continual observation of a spectrum of abilities of their students, can evaluate the performance. We know that checks of various kinds are necessary and perfectly feasible in such a system, and if necessary even outsiders can be associated either directly with some seminars, tutorials or projects, or indirectly, by reviewing the evaluation.

There are two common objections which are voiced—one refers to standards and the other to public confidence in the overall grade or division. I have discussed elsewhere, how illusory standards are—even excluding myriads of student activities involved in extension work which is not comparable nationally or internationally even without this consideration—neither syllabus, nor equipment, nor student-teacher ratio, nor even examination papers or results establish standards; they can all be, and sometimes are, fakes. As far as public confidence is concerned the only remedy is akin to what is available in another large and populous country—the United States of America. The highly decentralized system of awarding degrees, and grading of students by teachers in the colleges has to be supplemented by accreditation at the national level. The idea of a voluntary national merit examination is known to be sound and it has in turns been approved by the University Grants Commission, the Union Public Service Commission and the Association of Indian Universities. The results of such a national examination could be related to recruitment, awards of scholarships and other benefits—and these results could be fed back to the parent universities of the candidates to provide them general guidance regarding their performance. It is one of the urgent needs of the time to set up an independent authority to conduct such a naticnal examination for those who wish to be considered for jobs and scholarships.

(*iv*) *Help the teacher reform*: I realise that any change which presupposes change in behaviour on the part of tens of thousands of teachers is not likely to be effected quickly. But I plead that since this is the heart of the matter in raising our educational effort to the best international levels, we should make this a main thrust of future development. In connection both with the forms of learning interactions, and the evaluation of complicated intellectual activity, a great deal is to be learned in order to implement such a scheme, and a wealth of literature is available on the subject. But since university level teachers do not take kindly to any suggestion of professional training, other forms of continuing education of teachers should be adopted. An institution devoted to this purpose, holding seminars and summer schools, introducing multi-media approaches in place of just a lecture and a text book, producing suitable auxiliary materials and undertaking research in problems of university level learning, creativity and evaluation is a must in this situation. This task is beyond the university departments of education and it is imperative to take the matter up in earnest—hence the need of an institution under the wings of the UGC or under an autonomous society is deeply felt.

A new look at tasks and challenges

In the end, I would like to underscore once again that education functions in a set of external circumstances arising from our polity, our economy and our public morals. Our aspiration as a self-reliant developing country, and our desire to bring about social justice and well being through democracy are also important factors. My presumption has been that none of these circumstances and factors are likely to change radically in the next few years, even though there may be redefinitions all round. In that case, sitting back and allowing natural course of events to shape or defile our education would probably result in gravely damaging our institutions and hence our ability to fulfil our 'tryst with destiny'. Education is too precious an

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C F T.R.I., MYS

Study Centres in Halls of Residence

A. K. Anand*

Higher education

The post-independence period in India has among other things been remarkable for the development of higher education which is amply evident from the increase in the number of Universities from 20 in 1947 to 108 as date. The growth is phenomenal. The rise in student enrolment is also staggering. During the last two decades, the student enrolment has risen from 5,56,559 in 1960-61 to 26,18,228 in 1978-79. This period is notable also for the changing character of the universities. There has been the systematic waning of the examining body and the emergence of the federating universities with constituent colleges and lively campus teaching departments. This naturally has an important bearing on various aspects of the educational milieu.

Socio-economic background of students

Before India became independent, the average student in a college or institution of higher education belonged to the economically privileged class who could 'afford' to pursue knowledge. It was an elitist monopoly which meant a free flow of private means for purchase of books and equipment. It also meant that the student could retire to the seclusion of his affluent home during the preparatory holidays. He did not depend on libraries for text-books. In an economic atmosphere where socialistic thought was only a subject of academic debate and no stringent laws of taxation or ceiling on private property, educational attainments were not necessary for doing economically well in life. But the entire socio-economic background of students in universities today is changed. With the regulation of admissions and facilities to enable weaker sections of society to avail of higher education, education consciousness and intellectual attainments as opening vistas of prosperity, the student population today comes from middle class homes or from economically backward groups.

The pressures of industrialisation and urbanisation have also driven the exploding population to crowded urban housing. This is corroborated by the provisional population totals for 1981. In the state of Punjab according to 1971 Census, there were four cities with a population of 100,000 and above which has increased to seven as per the 1981 Census. Similarly in U.P., the number of such cities has gone up from 22 to 30 during this period.

The students from the rural areas do not like to go back home for preparatory holidays as these usually coincide with the harvesting season. The majority of the students, therefore, look for a place away from home to prepare for their examinations. It is also extra-ordinary to find a student who has his own text-books. Infact there is only a microscopic minority that come from affluent homes where they have personal text books and the necessary seclusion to withdraw for a couple of months for preparatory study for examinations, though the other extreme where students went to public parks or studied under street lights is also a swindling phenomenon.

Examinations reforms and reading habits

Also responsible for a marked change in the study and reading habits are the examination reforms and consequently different requirements. We have left the end of two year final examination system far behind and it has been replaced by continuous sessional evaluation, term-end examinations and semester system. Many courses have been restructured to include project reports and are more library oriented. According to information available with the Commission, sessional evaluation at different levels has been introduced in 65 universities including 14 agricultural/technical universities. Semester system is in vogue in 40 universities, 5 institutions deemed to be universities and 14 agricultural/technical universities. The changes in the system of examination crowded urban housing and the increasing volume of noise drives the students to the reading halls of the libraries throughout the year but more particularly during the examination days. As we said above, due to semester system some examination or another is always on.

With the introduction of the residential universities and teaching departments, the seminar technique, a certain amount of team study habit has grown among the students. It is possible that many students have to share a book as personal self-sufficiency in text-books is a thing of the past because of the prohibitive cost of books. There is also apathy when syllabi are planned because due to lack of proper co-ordination among the Boards of Studies and the library authorities, there is no certainty that books are not put in syallabi which have been long out of print or cannot be had at any price. The only copy available may be in reserve section in the library.

Co-education and a fair relaxation of social ethos has also been responsible for the preference of the library as a venue for study among the students.

Many courses have been introduced during the last twenty-five years and the relevant material is to be found only in reference books (Library Science Courses are a case in point) or in highly illustrated books as required by Courses in History of Art. These books are usually not issued for home-study.

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University libraries and text-books

The University Grants Commission in India in its development programmes gave top priority to establishment of university libraries. It was heartening to see the library-consciousness among the educational planners beginning with the nineteen fifties and sixties. University Libraries in a pivotal position became the scene stealers with their imposing exteriors and carefully selected collections. During the various plan periods, there were generous developmental grants for books, periodicals and in a way it ushered in a boom period, shooting up the record of the library accessions. The books from the Asia Foundation. The gifts under the PL 480 programme as well as permanent loans from the British Council and other missions also helped to enrich the libraries. But there was a perceptible change in the character of library collections. The library shelves graduated from touch-me-not collector's items and forbidding treatises to the books of the masses viz; the text-books. The multiple-copies started appearing. Another feature of the various libraries planned on the models of the best libraries anywhere was open-access and inviting reading halls. Thus, the libraries became people's libraries quite in keeping with the socio-economic background of the student population.

But there is the problem of reading space. Writing in the context of British University Libraries, Bryan has recommended provision of reading places for 25% to 30% of the fte (full-time equivalent) students members. Metcalfe mentions that Dr. W.W. Bishop had recommended as early as 1920 that libraries be prepared to seat one half of the entire student body at any time. By any standards, the seating space available in the reading halls of Indian University Libraries is not enough. Throughout the year and particularly during final examination days, the reading halls in the University Libraries are proving inadequate and it is not an uncommon sight to find students occupying any available quiet space, corridors, staircases, hallways, browsing lounges to labour through their courses just preceding the examinations.

The reading space in the library is required by the faculty, the research students, visiting scholars and public. However, majority of the library users are the students preparing for examinations. The serious researchers are far out numbered. The maximum convergence is, therefore, of examinees for (i) quiet reading space (ii) text books and (iii) study in groups. To meet these requirements, there is always a clamour for longer opening hours—many universities keep their reading rooms open on Sundays, holidays and till midnight. The concession invariably has been conceded after a 'demand' from student's unions and bodies. But this extended facility creates a number of problems both personnel and financial. No library has adequate staff for round-the-clock service. There are moreover a very large number of women employees in the libraries for whom there is the additional problem of working at odd hours. The financial stringency also is a vital factor in extending any service. Even if all these problems can be sorted out what happens to reading space?

Libraries in halls of residence

It is, therefore, being sought through this paper to make out a case for more study-centres and more significantly an innovation 'Libraries in Halls of Residence'. The Parry Committee from whose report this phrase is borrowed had recommended libraries in Halls of Residence though in a slightly different context and with some reservations. An attempt is being made to plead whole-heartedly for this experiment in a few chosen universities in the first instance, so that these could 'supplement the services provided by the University Library'.

Spacious hostels and halls of residence is a common feature of the major Indian universities. There is always room for flexibility in space and the hostels have the necessary infrastructural facilities to create text-book reading halls without any basic alterations. The advantages of this innovation would be :

(i) Relieving the pressure on library reading halls. An examinee always has the option of coming to the library if he wants to read anything in addition to the text-books.

(ii) Round-the-clock facilities in close proximity to the place of residence in their hostels.

Most of the students feel they can concentrate better after 11 o'clock but need occasional refreshment like tea etc. Till we have automation and vending machines, the issue of keeping the vitality up can also be looked after.

It might be felt that if reading halls are created in hostels, it would put the non-resident students at a disadvantage. This argument can be countered by the fact that a resident student always enjoys much more of campus life than the day student.

Private books and text-books

A tendency which is prevalent among the students is to study their own books, along with library books. This practice of bringing private books in the libraries is discouraged by the library administration as this creates problems of checking and the possibility of smuggling library books out. If the study-centres are created in Halls of Residences most of the essential text-books can be purchased and core collections created in the hostels which can be studied either in their rooms by the students or in the study halls. This would mean duplication of some services given by the university libraries, but it would be in the larger interest. If there is decentralization of pressure on reading space, more serious research students can be benefitted. Examinees could freely enjoy the facility of reading their own books with the text-books. If the central library is not open round-the-clock a student may feel that his time has been wasted which he could have utilized for study at night. It is where the Study Centres in Halls of Residence could step in. In fact the Students' Centres which provide purely recreative reading should extend their functions and provide text-books also. □

CONVOCATION

Challenges Facing Gandhigram

After independence, many Commissions were appointed to go into the question in greater depth and present a clearer formulation of the objectives of education in a free, independent India and how they should be carried out. Some changes have taken place in the system which was in vogue before independence. A good deal of dissatisfaction still remains because it has not been found easy to make the right kind of transformation in our system of education. It is however becoming clear that education today has many objectives to fulfil and has a vital role to play in the reconstruction of the country. Education for everybody is a principle we have all accepted. There are differences only about the content of education. The issue which has been troubling our minds is the suitability of our educational system for particularly the vast number of our boys and girls residing in rural areas, the special environment in which they function, and the kind of new social order we wish to create. The environment which obtains in rural India is different in many respects from the situation prevailing in areas which have been urbanised and industrialised. These areas will inevitably grow, but a large chunk of our country in the foreseeable future will remain rural. When we use the word 'rural' we do not propose to put our seal of approval on what exists in our villages today. There is much in it that has to be discarded, much that has to be modified and transformed, and vast new wealth has to be created. Our rural communities have also to offer us a new egalitarian social order with much better health and sanitation facilities and larger possibilities of a rich cultural life.

It is while keeping all this in mind that the Gandhigram Rural Institute has launched an educational experiment. This experiment has kept in view the broad objective of a casteless and classless society through non-violent means as envisaged by Gandhiji. The creation of this new society is a formidable challenge. It calls for change and development in many fields of life—political, economic, social and cultural. The Institute has to function as a Centre for Research and Rural Extension work which will help it and the country to carry out these changes. The Rural Institute started in a small way, but it had a great vision behind it. The Institute has now grown in many directions and today it has attained the status of a Deemed University.

The Rural Institute will prosper to the extent its moving spirits have faith in the objectives it has placed before itself and this faith is communicated to its students. When we use the word 'rural' it is often imagined that it is associated with conservative tendencies in our society, opposition to new ideas and allofness from the forces of Science and Technology. The Rural Institute, I believe, is proving that what it is aiming at is the exact contrary. It is the harbinger of a new economic and social order and proposes to fully utilise all that Science and Technology has to give. What it has to give has to be tested in the light of certain criteria and the large social and economic objectives the country has placed before itself.

There can be no thoughtless or indiscriminate copying of what has been done by other countries in the pursuit of their own right or wrong goals. It is obvious that we need Science and its applications for growing more food, securing more raw material for industry, providing better hygiene and sanitation, ensuring a much better supply of clean water to lakhs of villages, improving and expanding cottage, small scale and several processing industries, enriching cultural life, improving our livestock, increasing production in our dairies and fisheries, providing better housing, transport and communication and a whole host of other things.

In wishing to develop all our material and human resources, we will have much to take from modern Science and Technology. We need power for doing many things in our villages in order to get a richer and more varied life for our people in rural areas. It would be a grat achievement if energy is available not from any one or two central sources but in a more dispersed and decentralised form like solar energy or a biogas plant or in some other forms, which are under current discussion. Agriculture itself for its improvement and for giving us better and more abundant crops, calls for a scientific approach to its various operations. The same is true of our forest wealth which, on account of a growing population and other factors, is showing signs of rapid depletion unless we make enough use of Science and take other steps to conserve what we have and greatly add to it. With this approach in view, those who engage themselves in rural constructive work do a great service and add to the health, wealth, strength and happiness of the nation and are as much modern minded as any other class of people.

There is much talk in the country about making our education more relevant to our needs and surroundings. It has to train the child's intellect and heart as well as his hands. This is what your rural institute and similar institutions are seeking to do. They are in direct touch with the variety of problems facing the rural community. These problems offer scope for endless research and an endless variety of activities. Here is a vast field not only for scientific research but also for the expression of your social impulses and the development of your character and personality. It is the tasks that you engage yourselves in and the quality of vision which inspires you which sets the context in which growth, individual and collective, takes place. Life presents to us practical problems in most fields of life. Educational institutions succeed to the extent they prepare students for meeting the demands of an active, practical and social life. Here there is stress on the dignity of manual labour and acquisition of skills suited to the environment in which we have to work and live. Education has also its social, aesthetic and moral side. It has to train people for good citizenship. Life basically is indivisible. We go astray and do great damage if we cut it up into disconnected fragments. It is good that the institution has kept in view the inter-relatedness of the various sides of a man's life and the nation's growth.

The right to education arises out of democratic ideas. Everybody should have a chance to become intelligent and live a decent, cultured life. This carries with it the right to work. In the modern complex society the right to work has a close relationship with the belief that education opens the door to a useful and productive life. Education is a necessity not only for individual men and women but also for the State. It is the path to a nation's strength and well-being. What the nation's strength and well being consists in is a very vital matter. This srength and well being its spelt out in all that our democracy stands for in political, economic and social terms and the special emphasis laid on the freedom of the individual and a basically equal society. Gandhigram in the pursuit of its varied activities may well work out the implications of this new social order. The individual's growth and the nation's well being are both furthered by each being in harmony with the other.

Gandhigram is in the fortunate position of being closer to nature than many other educational institutions. The philosophy that nature and man were almost enemies, each of the other, is now under serious attack. This has created an artificial wall between man and nature. The close inter-dependence of man and nature is now winning wider recognition. This truth of interdependence can be brought out more forcefully in our rural areas than in our great cities with the urban habits and consciousness they generate. This inter-dependence, if properly worked out, can have many beneficial consequences and prevent, to take just one example, the destruction of our forests and promote the proper utilisation of our cattle wealth. Our rural institutes can make an effective contribution in this important field.

It is good to know that the Institute has given enough importance to the question of population control. Any runaway growth in population, it should be obvious to us all, would affect the very quality of our democracy and come in the way of effectively tackling the many tough problems we face in several spheres of life. It can affect our whole environment, physical, social and cultural in many adverse ways. It is only those who look at the problem from a narrow angle or bring, what might be characterised as sectarian considerations, into play that can be complacent in the matter of population control. We have to run a democracy and to make it meaningful and effective, satisfy everybody's basic necessities and give him health and education. Even now, as we are told again and again, a considerable percentage of the population is below the poverty line. How do we raise them above the poverty line if year after year ten to eleven million people are added to our population?

It may look as though in listing the things your Institute has to attend to we are putting too heavy a burden on it. The list, however, gives an idea of what a student needs to do in order to earn his livelihood and also equip himself adequately to face the challenges that await him as he works to bring about the right kind of transformation in the rural scene.

Education in the modern age has comprehensive aims. If development of the whole personality of man is its basic objective and to it is added his proper participation in the social and economic transformation of the country a student will have to learn a good deal and develop a certain social outlook and character. This is not beyond his capacity provided the right climate is created in an educational institution. In the creation of the right climate, both the teachers and students have a part to play. It is essential there is peace in the campus and students are able to devote themselves whole-heartedly to the pursuit of their studies. Here there is hardly any scope for politics, much less party politics. They are a definite hindrance to the creation of the right atmosphere. This is the time when they should know their country and the various forces shaping it. They will then be in a position to make a proper contribution to the rebuilding of our country in their chosen field of work including politics.

[Excerpts from the Convocation adress delivered by Shri Sadiq Ali, Governor of Tamil Nadu, at the Gandhigram Rural Institute].

CAMPUS NEWS

Narasimhaiah calls for full autonomy to varsities

Former Bangalore University Vice-Chancellor, Dr H. Narasimhaiah said that the three State Universities should be restored their total autonomy in all respects including granting of affiliations and sanctioning of new colleges. The order making the Government the principle authority in these matters was a "gross insult" to the universities and it was "high time that the Government stopped treating universities as extensions of Vidhana Soudha and the Revenue Department." Dr Narasimhaiah was inaugurating a one-day seminar on the University Review Commission (Raj Commission) Report, held by the Federation of University and College Teachers' Associations in Karnataka (FUCTAK)

Universities were academic institutions and giving permission to new education institutions was a purely academic matter. Hence it should be the main prerogative of the university to grant sanctions, he reiterated. Regretting that past changes in the university syllabi had been made with no specific purpose in mind. Dr Narasimhaiah suggested that future changes relate the prescribed subjects closely to the "problems of life and society." Mr T. Venkatesh Murthy, Federation General Secretary, read out messages from Chief Minister Gundu Rao and Education Minister Shankar Rao which said that the Government would take serious note of the conclusions of the seminar.

Historians urged to be realistic

Prof. Nurul Hasan, vice-president, Council of Scientific and Industrial Research (CSIR) while inaugurating a seminar on communalism trends in writing of Indian history, organised by Students Central Association, HP University said in Simla that there was an need for wiping out communalism, which led to partition of the country completely from our soil lest it should result in further disintegration of the country.

He called upon the youth to light out this concerous growth. Communalism he said, was not an ideology, which could be agreed upon or diferred. It had to be fought tooth and nail and erased for good Prof. Hasan said adding that only then could there be secularism and total harmony among all religions and sections of the society.

Referring to trends of communalism by certain historians, Prof. Hasan said it was their communalistic approach, which led to the distortion of facts of Indian history, especially during the British rule. Although the perception of history invariably undergoes a change as a result of historians, differing in their opinion, yet the facts of history which were interrelated should be stated outrightly and not be subjective to emotions or any other reason.

Dr L.P. Sinha, Vice-Chancellor, Himachal Pradesh University, while, welcoming Prof. Hasan alleged that some of the intellectuals showed traits of double facedness. Irrationalism and sentimentalism should not be tolerated. Dr Sinha pointed out that there were various approaches to the writing of historical facts, but, a communal approach should not be indulged in as it was biased and prejudiced.

Seminar explains change in study pattern

Dr. Dwarkanath, President, Federation of University and College Teachers' Associations of Karnataka while summing up the proceedings at the one-day seminar on the University Review Commission (Raj Commission) said that the defects in the education system were responsible for the growing frustration among members of the profession. The Federation would show its militancy soon. He said the Raj Commission had made recommendations in both the academic and administrative spheres. The major recommendations centred around the granting of full autonomy to universities, the teaching of English as a 'scientific' language and the taking of research degrees into account for promotions.

Referring to factors which had led to mounting frustration among teachers, he said many posts were lying vacant for years. These could have been filled as there were sufficiently well qualified people in the university. He cited the case of 82 professors' posts, in private and Government colleges, which had been lying vacant since 1973 though financial sanction had been granted by the Government.

Dr Dwarkanath said that a 'merit promotion scheme' had been suggested to the Government whereby teachers who had sufficient qualifications to merit promotion would get their due.

LNMU eligible for UGC grants

The L.N. Mithila University has been recognised by the University Grants Commission for the sanction of grants for the purpose of development. It has asked the university to send proposals for development projects costing Rs 75 lakhs during the sixth plan period. One of the conditions is that the State government must invest rupees two crores as capital expenditure for the university. In the case of Mithila University, the State government had invested only Rs 1.40 crore since its inception in 1972. Recently the State government released the remaining sum of Rs 60 lakhs to the University and thus fulfilled its commitment.

Further restrictions on new BEd colleges

The Mysore University Academic Council did not accept the proposal to have additional BEd Colleges in its jurisdiction from this academic year. The affiliation commission headed by Dr. D.N. Seetharamaiah did not recommend any futher affiliation. The council however granted affiliation to the Malnad Education Society, Chikmagalur, to start a B.Ed. college from this year as recommended by the commission.

Role of radiology in medical science stressed

Dr. R.K. Poddar, Vice-Chancellor, Calcutta University, stressed the need for rendering service to the ailing people by physicians within the limitations as far as possible because sophisticated radiological gadgets required for modern medical treatment were not available in the State. He, however, said that arrangements were being made in this regard. Dr. Poddar was inaugurating the 'Tech-in session-cum-seminar on Urology organised by the Bengal Radiological Association, a branch of I.R.A., in collaboration with the Indian College of Radiology, National Academy of Medical Science, West Bengal Chapter and University College of Medicines at S.S.K.M. Hospital, Calcutta.

Dr. A.K. Basu, Chairman, NAMS, (W.B. Chapter) was the chief guest. He emphasized on less expensive and common investigations of the diseases rather than the need of sophisticated radiological devices. He also regretted the deteriorating general services in hospitals.

Dr. Susanta Sarkar, Director, I.P.G.M.E.R., Calcutta, spoke on 'anti-mortem anatomical study of human system with the help of radiology. He said that radiology was helping in the treatment of cancer patients apart from diagnosis.

Dr. (Mrs.) S. Bhargava, Professor and Head of the Department of Radio-diagnosis. All India Institute of Medical Sciences, New Delhi and President, I.R.A. 1981, Lt. Col. S.K. Banerjee, Secretary, Indian College of Radiology, Dr. A.K. Ghosh, Secretary, B.R.A. also spoke on the occasion.

Minister's call for ending capitation fees

Mr B. Shankaranand Union Health Minister, has urged to evolve effective steps to eradicate the undesirable practices of levying capitation fees and establishing donor and endowment seats in Medical Colleges. Inaugurating the regional meeting of Health Ministers and officials of the Southern States in Madras, the Minister pointed out that for the past few months medical education was under stress in some parts of the country. An underlying cause of this malaise was the increasing frustration among medical graduates engendered by the real spectre of unemployment. This raised not only the issue of exploring means to increase employment opportunities but also tracing the shortcomings if any in the curriculum of undergraduate medical education which hindered effective participation in national programmes like malaria and leprosy control. Emphasising the need to protect the interests of the weaker sections he said levy of capitation fees and establishment of donor and endowment seats were unhealthy practices which State Governments should not encourage.

Abolition of students unions recommended

Abolition of elected students unions and weeding out of undesirable elements from colleges are the major recommendations of a State-level conference on higher education held at Karnal recently. The conference was organised by the Haryana Education Department. Mr Des Raj, Education Minister, was the chief guest at the conference. Mr J. D. Gupta, Vice-Chancellor, Maharshi Dayanand University, delivered the key-note address. The Kurukshetra University Vice-Chancellor, Mr M. Kuttappan, and Mr L. M. Jain, Director of Higher Education, also addressed the conference. It was attended by about 100 principals of Government and non-Government colleges of Haryana.

The consensus at the conference was that directly-elected students unions were the major cause of students' indiscipline. Speaker after speaker pointed out how undesirable elements were often capturing these unions. Indirectly-elected central associations, it was suggested, should replace the present unions. These would give students a sense of belonging to their educational institutions; it was felt. Another significant but controversial recommendation made by the conference was that undesirable elements should not be admitted to colleges. The conference felt that minimum marks prescribed for admission to colleges should be raised. Those passing out with compartments in two subjects should not be given admission in the next higher class.

Several speakers underlined the need for providing adequate facilities for sports in colleges. They felt that admission rules should be uniform for all the colleges in Haryana. They asked the Government to appoint a sub-committee to look into the question of provision of essential facilities in educational institutions. The conference viewed with concern the growing indiscipline among private college teachers and felt that steps should be taken to control and discipline them. There should be a code of conduct for non-Government college teachers. The conference differed on making moral education a part of the curriculum.

Satellite communication course for IITs

Telecasting live the next Republic Day parade and a 15-day advance course on satellite communication for four of the five Indian Institutes of Technology are two of the many experiments proposed for the first experimental communication satellite, APPLE, to be launched duning June. While the live telecast of the Republic Day parade can be viewed in Madras, Bombay, Calcutta and Ahmedabad, besides Delhi, the running commentary will be broadcast in four languages. According to an official of the Indian Space Research Organization, experts were also finalizing a 15-day advance course on satellite communication for the postgraduate students of the IIT in Delhi, Madras, Kharagpur and Bombay as part of the many experiments to be carried out through APPLE.

Under the programme, the students will be shown films and given lectures by experts for an hour during which any of the viewers can ask questions which would be answered immediately by the concerned expert. About a year ago, the Space Application Centre circulated a report on the capabilities of APPLE among a large number of private and public organizations, inviting proposals for experiments to be carried out through the communication satellite, which will move in a geo-synchronous orbit and be available for use for two years. But, in spite of constant persuasion by ISRO experts, very few user agencies showed an interest in carrying out experiments adding that there were many reasons for this apathy. First, prospective users were not sure of the usefulness and effectiveness of a communication satellite. Second they did not have the necessary expertise and infrastructure to use the satellite on an experimental basis.

However, the Posts and Telegraphs Department, the Meteorological Department and of course, ISRO, some educational institutions, newspaper, concerns and news agencies expressed willingness to try APPLE to find out if it was of any use to them.

People will realize the importance and use of a communication satellite and come running to utilize it once the experiment proves a success. It would require at least six weeks from the day APPLE is launched to check up its "health". The various experiments will be carried out only if the satellite was found fit. Till now everything in APPLE was found in order and it will hopefully go up into space. APPLE derived its name from Ariane Passenger Payload Experiment and will be placed in orbit by the European Space Agency's launch vehicle "Ariane Lo-Three" from Kourou in French Guiana.

New archaeological discoveries at Indore

New historical evidence indicating that the Guptas had established their rule, between the third and fourth century in North Nimar across the Narmada by defeating the Kshatrap rulers, has come to light from the trial excavations carried out recently at Ragara village near Dharmpur about 100 km from Indore. The excavations were carried out between May 6 and May 26 by the state archaeological department after 48 silver and gold coins, belonging to the Kshatrap and Gupta rulers had been found by the villagers while digginga trench at the excavation site.

Mr D.K. Mahashabde, registration officer at the Indore museum, who carried the trial excavations, said it was for the first time that such a horde of coins had been found from a single site of the two rulers. He said during excavations a burnt layer of the earth containing bones was found at the site. This indicated there had been a devastation, probably due to fighting between the Guptas and Kshatrapas before the former established their rule in the area. Copper objects, bangle pieces, shell bangles, terracotta beads, pottery of the Kushan, Gupta, Rajput and Mughal periods were discovered. A precious discovery was a piece of a gold ornament of the Gupta period. Of the 48 coins, nine gold coins were of the Gupta period, while 39 silver coins dated back to the Kshatrap rulers of Ujjain.

Lucknow to institute welfare fund for its teachers

Dr. O.P. Singh and Dr Sharad Saxena, President and General Secretary, respectively of the Lucknow University Teachers Association, said in Lucknow that the Vice-Chancellor had agreed to institute a Teachers Welfare Fund which would be utilised to provide relief to dependents in the event of premature death of a teacher. All teachers would be required to contribute three per cent of their examination remuneration towards this fund. Provident fund accounts of the teachers would also be streamlined within a period of three months. Instead of a general pool account, separate pass books would be issued to them.

National seminar on social sciences

The Indian Academy of Social Sciences in collaboration with various heads of institutions in Kanpur proposes to organise the multi-disciplinary national seminar on "social perspective of development of science and technology in India". Prof. S. Sampath Director IIT Kanpur has been requested to prepare a working paper on "social perspective of science and technology education in Indian schools, colleges and universities". All the collaborating institutions will contribute to the organisation of the seminar.

UPSC centre for southern region

Dr M.L. Shahare, Chairman, UPSC, said that the Government proposes to set up Union Public Service Commission centres in all the tribal and difficult areas of the country—beginning had already been made by opening such centres in Tripura, Assam and Mizoram. There was also a proposal to establish a centre for the Southern region, Dr Shahare said the Commission was trying to attract more people from rural areas to the competitive examinations conducted by it. Forty per cent of the successful candidates in the examinations for the IAS, IPS and other central services were from rural areas. He said that 86% of the 95,000 candidates who appeared for the preliminary examination for these services last year wrote their paper in English and only 12% in regional languages. A lone candidate wrote his papers in Urdu while none opted for Sanskrit, Sindhi or Kashmiri.

KU introduces semester system

Kurukshetra University proposes to introduce semester system at the postgraduate level and in law classes from the next academic session. A committee of Deans of Faculties has been constituted to finalise the preliminary details of the semester system.

News from Agril. Varsities

Kidwai eulogises role of farm scientists

While inaugurating the eighth Research Council meeting at Rajendra Agricultural University, Dr A.R. Kidwai Governor of Bihar, eulogised the role of agricultural scientists of India and added that it was a matter of pride that our country too was now exporting expertise in this field. He said that agricultural scientists should interact with advances made in the basic sciences and try to create centres of excellence as they would be known only by their contribution.

The Governor said that many South East and Middle East countries in Africa and South America were looking forward for Indian expertise in the field of agriculture. Earlier, only Europeans were exporting the expertise. Stating that Bihar had a rich tradition of research in agriculture which was evident from the fact that the Imperial Agricultural Research Institute was first set up at Pusa, Dr Kidwai exhorted the scientists to keep up their tradition. Knowing as we did, he said how to increase agricultural production, the country had achieved self-sufficiency in food. But he reminded the Bihar scientists that agricultural production could still be increased because plains in North and South Bihar had immense potentiality to boost up production. The South Bihar plateau was good enough for horticulture and dry land farming, he added. For this purpose he wanted that the scientists should make full use of the available technical knowledge and utilise land and water resources up to the optimum.

Earlier, in his welcome address, Dr K.K. Jha, Vice-Chancellor of the University, acquainted the Governor with different research activities in the field of agriculture and animal husbandry. He pointed out that the university, unlike traditional university, had direct intar-action with the farmers through extension education besides education and research which were fully integrated here.

Forestry college near Ranchi

The forestry college at Kanke about 13 km from Ranchi on the Birsa Agricultural University campus would be established soon. The first batch of 30 ranger-trainees are on their last lap of training and before going out they will visit West Bengal for training in logging and high altitude road making. They have already visited UP and Bihar forests and have received specialised training in wood technology and timber testing at the Forest Research Institute (FRI) in Dehra Dun.

Sericulture schemes in four states to be combined

Sericulture development programmes in four States—Tamil Nadu, Andhra Pradesh, Uttar Pradesh and West Bengal—are being planned as a combined project for World Bank assistance. The programmes envisage the doubling of the area under mulberry and raw silk production following the technological break-through achieved in getting over the climate barrier for silk production. According to Mr B. Ramadorai, Development Commissioner for Handlooms, until recently only Karnataka was considered suitable for sericulture because of its temperate climate. But research conducted at the Central Sericulture Research and Training Institute at Mysore had led to the development of methods for silk production in tropical climate and to the development of high-yielding varieties of silk worms. Following this, states other than Karnataka took to sericulture in a big way. Already, Tamil Nadu had brought 40,000 acres under mulberry, Andhra Pradesh 40,000 acres, West Bengal 25,000 acres and Uttar Pradesh 5,000 acres. Now, Tamil Nadu has planned to increase the area to 80,000 acres, Andhra Pradesh to 100,000 acres, West Bengal to 50,000 acres and Uttar Pradesh 25,000 acres.

AIU PUBLICATIONS JUST RELEASED

1. **Question Bank Book Series Pharmacology (Med.)** Rs. 35.00
2. **Monograph on Modernisation of Examination Results** Rs. 5.00

Tamil Nadu had forwarded to the Centre the detailed project report for this. As soon as the project reports are received from the other three states. World Bank assistance would be sought for all of them as a combined project. This would be in addition to the project at Karnataka, which had already been launched with a $50 million assistance from the World Bank.

Mr Ramadorai, after attending the meeting of the international Sericulture Commission and International Silk Association at Lyon (France), said the Indian breakthrough in making silk production possible in tropical climate was appreciated at the world forum. It was recognised that India was poised to emerge as a major silk producer along with China. Silk production in India, he said, was targeted to increase to 9,000 tonnes by the end of the Sixth Plan from the existing level of 3,800 tonnes Silk production in Japan and South Korea had of late been declining China continued to be the main source of supply of raw silk to the European silk industry.

At the recent meeting of the International Silk Association, European countries, like Switzerland, Italy and France which had a strong silk industry, were worried whether China would continue to make raw silk available to them. China assured them of not only continued supplies at stable prices but also increased quantities if necessary it had also offered $23 millions for promotion of silk in Europe.

Tirupati plans diploma in rural studies

A diploma course in rural studies would be introduced in Sri. Venkateswara University from the next academic year. Dr. M.V. Rama Sarma, Vice-Chancellor while inaugurating a six-day course on plant protection, organised by two voluntary organisations, said the University Grants Commission was thinking of adopting a systematic and scientific approach to rural studies. Sericulture could be dovetailed into the proposed rural studies course. He said the recent meeting of the Vice Chancellors and the UGC stressed the need for setting up a rural university in a rural area.

Mr G. Sivaramamurthy, Secretary of the Society for Development of Rural Sericulture Industry (SDRSI) urged the Andhra Government to encourage sericulture to better the lot of rural poor. While silkworms worth crores of rupees was sent to Karnataka, the Andhra farmer was being deprived of his legitimate place in the silk industry. The society was prepared to help the small farmers to take up sericulture from the plantation to fibre level. In all, it would assist 2,024 farmers below the poverty line. It would spend Rs. 1.19 crores on the programme.

PAU to review its working

The Punjab Agricultural University will review its work during the past 17 years of its existence through several panels of experts. The decision for self-evaluation by own and outside experts was taken at a meeting of the board of directors of the university held in Chandigarh recently. Mr I. C. Puri, acting Vice-Chancellor of the university, said there would be separate panels to evaluate work on different crops including wheat, paddy, cotton, sugarcane and oilseeds. The panel on wheat will make a special study of crop diseases and find ways to check them. He said a lot of work had been done at the university but it was felt necessary to have an independent committee to evaluate the work. All the panels will be appointed by the Vice-Chancellor and would be expected to submit their reports within three months. There would be panels on management practices too. For instance, one would study the system of rotation of deans and heads of departments while another would deal with the staff and faculty structure for having a hard core faculty and staff for specific schemes.

It was decided, Mr Puri said, that the university should have a greater autonomy in formulation of its schemes and research programmes. Instead of the State Government studying every scheme and screening it for sanction of funds it should approve block grants for departments or disciplines and the experts at the university should be left free to prepare scheme. Thus, much of the red tape would be cut. The budget of the university would be recast to see that it was evenly distributed among all disciplines and departments depending on the priorities of work. A committee would be set up to take these decisions. An effort would be made to have a balanced budget.

Another important decision concerns greater communication between the specialists at the university and the extension staff of the State agricultural department. For this a State committee headed by the development commissioner would be appointed to coordinate efforts and sort out problems. The idea was to convey the results of the laboratory to the farmers speedily. The contact between the two organizations would also be made more effective at district level.

Personal

1. **Dr D. M. Nanjundappa has taken over as the Vice-Chancellor of Karnatak University.**
2. **Dr Surendra Singh has been appointed Vice-Chancellor of the Banaras Hindu University.**
3. **Dr S. Ramaseshan has been appointed Director of the Indian Institute of Science, Bangalore.**
4. **Prof. M. V. Mathur has rejoined the National Institute of Planning and Administration as an honorary Professor Emeritus.**
5. **Prof. I. P. Singh, Head of of the Department of Anthropology of Delhi University has been elected Secretary of International Association of Anthropology Editors.**

Science & Technology

India develops new fibre optics technology

A sophisticated fibre optics technology has been developed by the scientists of the Central Scientific Instruments Organisation (CSIO). The technology was kept secret. Its tremendous potential for various types of application, Dr Vardhan said, include medical instrumentation and diagnosis without surgery, space and astronomical research communication, nuclear research, military use for secure telecommunication and night vision devices. It is also used in computer links, process control and automation in Industry.

At present, fibre optics-based instruments and devices used in medicine, industry and research were imported at a high cost, he said, adding that costs would be cut by at least 50 per cent with the indigenous development of this technology. The technology, helps in the guidance of light energy through optical fibres which are flexible, small-sized, lightweight, immune from electromagnetic disturbances, safe from short-circuiting and sparking and has a high information band-width for communication.

Based on this technology, the CSIO has developed multiple fibres and a fibre optic clinical head lamp. Prototypes of some medical endoscopic instruments like otoscope for examination of the ear, placentoscope for viewing the placenta and oesophasgoscope for wind pipe and bronchus examination have also been developed with the help of the new technology. The other fibre optic instruments proposed to be developed are laparoscope, cystoscope and nasal-pharyngoscope.

Jaipur hosts petrology seminar

A three-day symposium on 'Three Decades of Developments in Petrology, Mineralogy and Petro Chemistry' was held in Jaipur. Mr V. S. Krishnaswamy, Director-General, Geological Survey of India, in his presidential address said that the aim of the symposium was to bring into focus not only the many problems that had been handled in the past 30 years but also to take stock of activities using sophisticated instrumental aids. He advocated extensive research using sophicticated instruments on the petro and minero-genesis of Indian rocks and minerals. This was the first symposium to be held on this subject.

Mr Krishnaswamy pointed out that India had a large collection of granite and other basic rocts which had been rocognised in the world for the first time and said that these had contributed significantly to the knowledge of the basic problems concerning the evolution of the earth. Several advances in petrological and mineralogical research conducted in India had a world wide impact, he pointed out. One of the comprehensive early petrological studies in India related to the anorthosites of West Bengal, where 'gabbra' and norite were constant associates of anorthosites. More recent work in the country had encompassed the petrological and mineralogical aspects of the small occurances of anarthosite bodies which abound in the eastern ghats and in their southern continuation.

Dr Iqbal Narain, Vice-Chancellor of Rajasthan University, who inaugurated the symposium stressed the need for a firm link between fundamental research and applied research in the field of petrology. He felt that these researches should be aimed at bringing about socially and economically viable precepts. Dr Narain said that geologists could play a significant role in disaster management like controlling of droughts and forecasting earthquakes and other natural calamities so that mankind could safeguard itself against these. He said that whatever research carried out in this field should be implemented keeping in view the local context. He emphasised the need for collaboration between Rajasthan University and the Geological Survey of India on major research projects. He said the Rajasthan University was planning to start a post-graduate course in geology very soon.

University of technology for Punjab

Punjab may soon have a university of technology. Addressing a seminar of engineers, specialists, technical experts and teachers at the Technical Teachers Training Institute the Punjab Minister for Technical Education, Mr Beant Singh, said that the need for an apex technological institute was imperative. He would get a detailed blueprint of the project drawn up. It would incorporate administrative, financial and organisational implications and other features. Mr Beant Singh also said that in order to give an impetus to higher technical education it was proposed to set up an engineering college in Jullundur during the current financial year. The proposed institution would have such courses of study as would meet the contemporary socio-economic needs of the State.

Mass spectrometer installed at RRL, Jammu

A GLC-cum-Mass Spectrometer (Model JMS-D 300, from JEOL Ltd., Japan) has been installed recently at Regional Research Laboratory, Jammu. This Rs 20 lakh facility has a fast computer and a library consisting of Mass Spectral data of 30,000 organic compounds. For obtaining a mass spectrum from this instrument one micro gram sample is more than sufficient, while results can also be obtained even from one nano gram quantity of sample. Sample in solid, liquid or gaseous phase can be fed to this instrument. It is also possible to obtain the elemental analysis leading to the molecular formula of the compound by using the instrument in high resolution mode. Associated library can be used for exactly pin-pointing the name of the compound being analysed.

Organic mixtures can also be analysed by injecting the sample in the GLC associated with the instrument. The elutants are automatically fed to the mass spectrometer and the mass spectra of individual compounds are obtained with the help of computer system. Thus the instrument is very useful for obtaining mass spectral data of pure organic compounds or their mixtures.

SPORTS

Liberalisation for coaching camps and tours

The All-India Council of Sports has liberally granted sanction to all those national sports federations which had submitted their programmes—coaching camps and tours abroad—in preparation of the teams for the 1982 Asian Games. The government is expected to incur an expenditure of Rs. 1.50 crores for the total eight-month coaching camp. The general body of the All-India Council of Sports which met in Pune recently under the presidentship of Field Marshal S.H.F.J. Maneckshaw, was informed about the progress being made in preparation for the games and also on the progress made for the acquisition of foreign coaches, and procurement of equipment and sports goods from abroad, both for training purposes and for use at the Asian Games.

Mr A.S. Talwar, Director (Sports) Union Ministry of Education, also informed the council that the dietary allowance for the players participating in the coaching camps had been increased with retrospectiye effect from May 7 from Rs. 19 to 26 and also the pocket money of Rs. 2 each were being paid to them in addition to government also agreeing to pay travel expenses of all sportsmen, in cases where their employers are not in a position to do so. An important decision conveyed to the council was that the Ministry of Defence has agreed that persons invited to the coaching camps for Asian Games will be treated as on duty. Efforts were also being made to have a similar decision for others. The AICS also recommended a synthetic turf to be laid as early as possible at Bangalore for field games like hockey in addition to the astro turf already ordered from the United States to be used for hockey at the Asian Games in New Delhi. A 60 x 25 yards practice hockey pitch to be laid at NIS (Patiala) is expected to arrive any time.

Mr R. L. Anand, Director of Sports, NIS Patiala, said that a contract had already been signed with a foreign firm for laying a synthetic track for coaching of athletes at the camp. Meanwhile a two lane training track is ready for use at Patiala.

Elaborating on the equipment being imported from abroad Mr Anand said that two wrestling mats to be used during the competitions have already arrived. Orders have also been placed for import of fibre glass poles and tavelins from German Democratic Republic and the U.S.A. The full equipment and machinery for gymnastics—including mats for floor exercises is being imported from West Germany, while shuttles and equipments for volleyball and basketball—are also being imported from indonesia and Japan, while the physical conditioning equipments are expected to arrive from the U.S.A.

Out of the twenty disciplines at the Asian Games—all of them barring golf—are reported to have finalised and submitted their plans and programmes for the games. Mr Anand said that contracts have also been signed with foreign coaches for training the Indian teams in the table tennis, volleyball, basketabll, gymnastics, wrestling, weightlifting and boxing.

Perspectives in Higher Education

(Continued from page 350)

instrument to be allowed to rust like that. The educational system which served us well upto about the seventies now requires a new look as an organ of contemporary and emerging society. I have outlined what I consider important aspects to concentrate upon, but this needs further thought. Our society has already gone beyond the point which the Education Commission had taken into account in the mid sixties—hence with out reopening issues settled by that Commission, there is urgent need for a high powered national group to be set up to prepare a working document on new tasks and perspectives and the manner of their fulfilment in higher education. There should then be countrywide discussion of the document ultimately reaching the Parliament for adopting a suitable and enforceable policy.

The feudal order and the colonial system had set very limited objectives for education and therefore the systemic structure was also simple but rigid. After independence, in spite of far reaching political social and economic changes, we have, more or less, added further modules horizontally and vertically to the same structure—sometimes to take care of expansion, sometimes to upgrade the content and quality. As a result, the system has become overloaded the strains have begun to show. Worldwide educational thinking has evolved in the meantime indicating new and interacting roles for education in a developing society. At this juncture therefore education and its system cannot be materially altered without some corresponding changes in other adjoining structures. The perspective could indeed be bright if we have the political and administrative will to make use of our vast and competent human resource, in selecting a few crucial aspects of the system for rationalization and reinforcement. The fact that education is on the concurrent list increases the responsibility of the Central Government in having these crucial aspects identified, and in having steps taken to mobilize national opinion in favour of positive decisions regarding implementation. Let us hope that the eighties will be brighter than the seventies.

[*Excerpts from the Saiyidain Memorial Lecture delivered by Dr Rais Ahmed*].

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Chaudhuri, Sripati Ranjan. Some problems of vibrations in finite elasticity. University of Burdwan.

2. Gangopadhyay, Alolika. Some problems of plasticity. University of Burdwan.

3. Patil, Dharamraj Anna. Investigations of some open problems from the theory of univalent and multivalent functions. Shivaji University.

4. Samanta, Syamal Kumar. A study in the theory of fixed points of mappings. University of Burdwan.

5. Venu Gopal, R. Fluid dynamics: MHD flows through or past porous media. Sri Venkateswara University.

Astronomy

1. Subrahmanyam, P.V. Tidal coalescence of binary stellar systems. Osmania University.

Statistics

1. Sesha Chalapathi, Chintalapati Venkata. On some problems of unobservable and random coefficient models in econometrics. Andhra University.

Physics

1. Bhattacharyya, Asok. On the design of efficient checking experiments for synchronous sequential machines with failure detection capabilities. University of Calcutta.

2. Bhattacharyya, Mira. Some studies in nuclear corelations. University of Calcutta.

3. Biradar, Ashok Manikrao. Studies on semiconducting antimonide thin films. Sardar Patel University.

4. Chaudhuri, Bhajan. Studies on the Schuster-Kubelka Munk theory for inhomogenous media. University of Calcutta.

5. Devale, Arun Bajarang. Structural, electrical and X-ray spectroscopic study of substituted nickel magnets. Nagpur University.

6. Joy, E.C. A study of the effect of electrodes and overlayer films on the electrical properties of certain metal films. University of Cochin.

7. Katyal, Subhash Chander. Study of PbS-based ternary amorphous semiconductors. Maharshi Dayanand University.

8. Laxmanrao, Yadupal. X-ray spectroscopic study of the electronic structure of matter. Nagpur University.

9. Mahajan, Mahesh Damu. Studies on semiconducting properties of gallium antimonide films. Sardar Patel University.

10. Siva Sarma, K.V. Studies in molecular vibrations by the Green's function technique. Sri Venkateswara University.

11. Wani, Popat Ananda. Studies on growth and characterization of the solid solutions of MO_{1-x}, W_x Se_2 system in the form of single crystals. Sardar Patel University.

Chemistry

1. Basu, Subhadra. Studies on inhibition of the corrosion of metals in relation to the electro-capillary action of organic corrosion inhibitors. University of Burdwan.

2. Chattopadhyay, Panchanan. Chemical investigation on the biochemical mutants of Aspergillus species. University of Calcutta.

3. Dash, Manjula. Synthesis, chromatographic and biological studies of new thiazolines. Utkal University.

4. Gangopadhyay, Manaskumar. Studies on organic and biochemical reactions with inorganic reagents. University of Calcutta.

5. Kokil, Pandurang Bapurao. Studies on the chemistry of trivalent iodine and the orygenation of aromatic compounds. Shivaji University.

6. Mishra, Ruchi. Excess thermodynamic function of binary mixture of non-electrolytes. Maharshi Dayanand University.

7. Mukhopadhyay, Madankumar. Phytochemical investigation on Indian plants. University of Calcutta.

8. Venugopal Reddy, Karnati. Interaction of metal ions with nucleosides and nucleotides in solution. Osmania University.

9. Verma, Om Prakash. Studies of some substituted amines, oxyacids and their metal complexes at DME. University of Rajasthan.

10. Yeole, Vasant Vishwanath. Analytical applications of B-diketones and hydroxylamines. Shivaji University.

Earth Sciences

1. Briz Kishore, B.H. Hydrogeological investigations and aquifer modelling studies in Shadnagar granite basin, Andhra Pradesh, India. Osmania University.

2. Swamy, V.V.L.N. Composite geophysical surveys for base metal sulphide deposits in selected parts of Cuddapah basin, Andhra Pradesh, India. Osmania University.

Engineering and Technology

1. Khobragade, Namdeo Tulshiramji. Analytical and experimental studies on dynamic stability of synchronous power systems. Nagpur University.

2. Nanua Singh. Modelling and analysis of multi-echelon inventory systems for spares. University of Rajasthan.

3. Sahoo, Nilachal. Destruction mechanism of refractories in cement rotary kilns of Orissa Cement Limited. Sambalpur University.

4. Sinha, Praphulla Kumar. On fluidized bed combustion of coal. University of Burdwan.

BIOLOGICAL SCIENCES

Anthropology

1. Basu, Arabinda. Dermatoglyphic variation in six endogamous castes of Mysore, Karnataka. University of Calcutta.

2. Rajani Kumari, Jasti. Demo-genetic study of human sex ratio in Visakhapatnam District, Andhra Pradesh. Andhra University.

3. Sambasiva Rao, Ravi. A study of arterial blood pressure correlates among three populations of Visakhapatnam Area, Andhra Pradesh. Andhra University.

Biochemistry

1. Chakrabarti, Asokkumar. Studies on pigment metabolism in relation to leucoderma. University of Calcutta.

2. Chaudhuri, Murarimohan. Studies on the effects of caffeins in macro-molecular synthesis and on chromosomes in Ehrlich mouse ascites tumor cells. University of Calcutta.

3. Ghosh, Udita. Studies on isoenzyme of lactic dehydrogenase malic enzyme of brains in different species of animals and human beings. University of Calcutta.

4. John, Gladys. Some aspects on the production and prevention of liver cell injury with reference to biochemical machanisms involved. University of Kerala.

5. Mukhopadhyay, Jharna. Studies on nucleoside triphosphatase with special reference to ATPase from Mimosa pudica in relation to contractile proteins and movements of the leaves. University of Calcutta.

6. Sengupta, Sunada. Studies on non-lipid constituents of some minor oilseeds. University of Calcutta.

7. Senmajumdar, Anis. Studies on the immunological mechanisms in cholera. University of Calcutta.

Botany

1. Baruah, Lily Mazinder. Biological effects on the storage of foodstuffs. Gauhati University.

2. Ghosh, Mohanlal. Studies on growth, development and senescence of some essential oil yielding plants with special reference to their oil content. University of Burdwan.

3. Ghosh, Srilekha. Studies on the genetics of Rhizobium. University of Calcutta.

4. Gupta, Satish Chandra. Studies on morphogenesis and differentiation in vitro cultures of organs, tissues and cells of some solanaceous plants. University of Rajasthan.

5. Kaul, Autar Krishen. Studies on the female meiosis of some Indian Aliums. University of Kashmir.

6. Mukhopadhyay, Chandan. Metabolic alterations in plant tissues induced by cadmium. University of Calcutta.

7. Nandi, Anil Kumar. Studies on induced mutation in Streptomyces species in relation to antibiotic and enzyme production. University of Calcutta.

8. Pradeep Kumar. Studies on the structure and development of seed coat in Malvaceae. Bhopal Vishwavidyalaya.

9. Sahay, Shyam Nandan. Biosystemic investigations on several members of the family Polygonanceae with special reference to their chromosomal characteristics University of Calcutta.

10. Sharma, Uma Kanta. On infection of rice plants in the fields of Kamrup District of Assam and their control. Gauhati University.

11. Thakkar, Ila Bharat. Ecological studies on soil algae. Nagpur University.

12. Waghodekar, Vilas Harishchandra. Study of flagellates of Gujarat: Euglenoids. Sardar Patel University.

Zoology

1. Agao, Babasaheb Baburao. Biology of the cestode parasites of vertebrates in Maharashtra State. Marathwada University.

2. Banswal, Ramanlal Tulsiram. Biological studies on Ganeo-tigrinum Mehra et Negi 1928 (Trematoda:Lecithodendridae). Marathwada University.

3. Bhatia, Deepa. Sex-cycle and associated phenomena in the bat, Hipposideros speoris of Maharashtra. Nagpur University.

4. Chakraborti, Parimalendu. Studies on the hydrobiology of some fresh water fisheries. University of Burdwan.

5. Elizabeth, T.K. Studies on the kidneys of teleostean fishes. University of Kerala.

6. Guntaka, Krishna Mohan. Studies on soil and plant parasitic nematodes of certain cash crops from A.P. Osmania University.

7. Inder Jeet Singh. Studies on blood coagulating haemolytic and lethal activities and immunogenicity of Naja naja snake venom with special reference to the effect of some physical and chemical agents. Andhra University.

8. Joshi, Prabhakar Keshavrao. Reproductive physiology and neurosecretion in some Indian marine prawns. Marathwada University.

9. Kadam, Gopalrao Arjunrao. Studies on some aspects of a fresh water crab with special reference to temperature acclimation. Marathwada University.

10. Kaushik, Sadhna. Histopathological and histochemical studies on the digestive system of Ophiocephalus punctatus and Clarias batrachus treated with acetylsalicylic acid and arsenic with special reference to the regeneration of lesions. Meerut University.

11. Medya, Bhabes Chandra. Studies on the hypothalamohypophyseal complex in relation to gonadal behaviour in a fresh water major carp, Cirrhinus mrigala. University of Burdwan.

12. Mitra, Dilip Kumar. Nematode parasites of some birds of Birbhum District. University of Burdwan.

13. Mote, Laxman Tatoba. Studies on non-specific esterases in gonads and associated reproductive organs of some vertebrates. Shivaji University.

14. Mukhopadhyay, Phalguni. Studies on the relation between soil and its mesofauna with special reference to Collembola (Insecta) in the Himalayan and Sub-Himalayan ecosystems of West Bengal. University of Burdwan.

15. Narasimha Reddy, S. Laxmi. Physiological responses of Barytelphusa guerini to environmental variations. Osmania University.

16. Nirmala Devi, Krishamsetty. Studies on brachyuran crabs (Decapoda) of Andhra Pradesh. Andhra University.

17. Radhakrishna Rao, Pandu Ranga. Taxonomic studies on species of three families of fishes. Andhra University.

18. Singh, Rabindra Narayan. Studies on some nutritional and environmental factors affecting the physiological and behavioural processes associated with reproduction in Tribolium castaneum (Hrbst.) (Coleoptera: Tenebrionidae). University of Gorakhpur.

19. Subhash Chander. Secondary production in the estuarine inshore and adjacent waters of Goa. Panjab University.

Medical Sciences

1. Appaji, P.V. Studies on interaction of tetracyclines with some drugs. Nagpur University.

2. Bandyopadhyay, Santosh Kumar. Clinico-pathological observations on retinoblastoma. University of Calcutta.

3. Pathak, Arabinda. Studies on protein status and thyroid function in human system. University of Calcutta.

Agriculture

1. Chakrabarti, Sahadeb. Effect of micronutrients on growth and yield of major field crops grown in the Gangetic Delta region. University of Calcutta.

2. Gangopadhyay, Rabindranath. Studies on the aphids of Tripura with special reference to biology and control of some of the economically important species. University of Calcutta.

3. Shinde, Gangadhar Govindrao. Effect of moisture stress at critical growth stages on development and yield of groundnut, Arachis hypogea L. in summer season. Marathwada Agricultural University.

Veterinary Science

1. Ghaffar, Ameen Abdul. Studies on certain aspects of pathogenesis and diagnosis of experimental Escherichia coli pyelonephritis in rabbits. Haryana Agricultural University.

ADDITIONS TO AIU LIBRARY

Bailey, Stephen. *Purposes of education.* Indiana, Phi Delta Kappa Educational Foundation (c 1976) xvii, 142p.

Becher, Tony and Kogan, Maurice. *Process and structure in higher education.* London, Heinemann (c 1980) ix, 222p.

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SAURASHTRA UNIVERSITY

Applications in the prescribed forms are invited for the undermentioned posts. Application forms alongwith detailed requirements of qualifications and experience for these posts will be available from the Registrar, Saurashtra University, University Campus, Kalawad Road, Rajkot-360 005, on sending a self-addressed envelope of the size 23 x 11 cm. with postage stamps worth Rs. 1.60.

Applications (seven copies) accompanied by Indian Postal Order for Rs. 10/- crossed in favour of the Registrar, Saurashtra University, Rajkot, should reach this Office on or before **29 6-1981**.

1. **DEPARTMENT OF GUJARATI**	
Reader : 1	
2. **DEPARTMENT OF ECONOMICS**	
1. Professor : 1	Specialization in Business Management.
2. Reader : 1	Specialization in Quantitative Economics Mathematical Economics Econometrics Applied areas of Economics
3. **DEPARTMENT OF SOCIOLOGY**	
1. Professor : 1	The incumbent is required to develop Rural Sociology in Saurashtra
4. **DEPARTMENT OF HISTORY**	
1. Lecturer : 1	Specialization in Modern Period of Indian History and/or History of Modern Times.
5. **DEPARTMENT OF LAW**	
Professor : 1	
Reader : 1	
Lecturer : 1	

Pay Scales

1. Professor : Rs. 1500-60-1800-100-2000-125 2-2500
2. Reader : Rs. 1200-50-1300-60-1600-assessment-60-1900
3. Lecturer : Rs. 700-40-1100-50-1300-assessment-50-1600.

The posts are permanent and the appointment shall be given on probation initially for one year which may be extended for a period not exceeding one year.

The initial appointment shall be with the minimum of the pay scale but in suitable cases higher initial pay may be considered. The allowances like D.A., A.D A., H.R A. etc. and Provident Fund and retirement benefits will be admissible as per the University Rules from time to time.

Age ordinarily not exceeding 55 years. The age, educational qualifications and the experience may be relaxed in suitable cases. The employment shall be subject to the conditions of service rules for the University employees as may be amended from time to time.

The candidates already in employment must submit their applications through their present employers. Those knowing Gujarati and/or Hindi will be preferred The candidates will have to travel at their own cost if called for interview.

V.M. Desai
REGISTRAR

PUNJABI UNIVERSITY
PATIALA

Advertisement No. 6/SPS/PRO/Estt./81

Applications are invited for the following posts:

1. **Professors** : One each for Sri Guru Granth Sahib Studies and Political Science (Rs. 1500-60-1800-100-2000-125/2-2500)

Qualifications

An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Specialization for Professor for Sri Guru Granth Sahib Studies

Thorough knowledge of the Sikh Scriptures and Gurmit with a background in the Indian Philosophical systems.

2. **Lecturers in Business Management (Three)**
   (Grade Rs. 700-40-1100-50-1600)

A Master's degree in Business Administration or M. Tech. degree in Engineering with first class with the proviso that the incumbent would acquire a doctorate degree within a period of 5 years. In the case of allied subjects like Industrial Psychology, Personnel Management, Business Statistics, Cost Accountancy etc. where Lecturers could be recruited with qualifications other than MBA and M. Tech., the minimum qualifications would be :

(a) A Doctor's degree or research work of an equally high standard in the relevant subject, and

(b) Consistently good academic record with first or high second class (B in the seven point scale) Master's degree in a relevant subject or an equivalent degree of a foreign University.

(c) Qualifications prescribed in (b) above are relaxable in case the research work of a candidate as evident either from his thesis or from his published work is of a very high standard. If a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing consistently good academic record (weightage being given to M. Phil or equivalent degree or research work of quality) could be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organization on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements.

Specialization

Marketing Management, Personnel Management and Industrial Relations, Accounting and Financial Management, Production and Quantitative Analysis.

3. **Department of Botany**
   (Plant Conservatory)
   Research Fellows : Two
   (Rs. 500/- p.m. all inclusive)

Qualifications

Ist class M.Sc. in the subject of Botany with two years research experience. Persons having experience of undertaking botanical excursions in connection with their research work on wild plants in the field of Cytology/Taxonomy/Morphology will be preferred.

OR

Research Fellows : (Rs. 400/- p.m. all inclusive)

Qualifications

The applicant should be atleast 2nd class (B+) B.Sc. and M.Sc. in Botany. Candidates with research experience in the field of Cytology/ Taxonomy/ Morphology will be preferred. If the work and conduct of the candidate is found satisfactory for the first two years then the amount could be raised to Rs. 500/-

UNIVERSITY HEALTH CENTRE

4. **Pharmacist**

(Rs. 510-15-600/20-700/25-850-30-940)
Diploma in Pharmacy and Dresser's Course or Diploma in Pharmacy from a recognised Institution.

REGISTRAR'S OFFICE

5. **Steno-Typists**

(Rs. 400-10-450/15-525/15-600 + Rs. 25/- Special Pay)

25% posts are reserved for members of Scheduled Castes/Tribes and 5% for Backward Classes.

Candidate should have passed Matriculation/Higher Secondary Examination in Second division with a minimum speed of 80 w.p.m. in shorthand in Punjabi/English with a typing speed of 40 w.p.m. in Punjabi/English respectively and should be able to transcribe the matter on typewriter at the speed of 15 w.p.m. with the condition that the selected candidates will have to qualify the shorthand test in 2nd language i.e. English or Punjabi, as the case may be, at a speed of 55-60 w.p.m. failing which such persons will not be confirmed as Steno-Typists.

Candidates with 3rd division in Matriculation/Higher Secondary Examination with at least two year's experience as Clerk/Steno-Typist and exceptionally good in shorthand/type writing could also be considered. Candidates must have passed Punjabi as one of the subjects in Matric/Higher Secondary.

Candidates with Ist division in Matric/Higher Secondary Examination and graduate with experience in Government/University office and those who qualify shorthand in both the languages will be given preference.

6. **University Service and Instrumentation Centre Technician 'B' (Mechanical)**

(Rs. 320-8-400-10-450)
Certificate Course from I.T.I. with five years experience.

GENERAL

Candidates for teaching and research posts should possess working knowledge of Punjabi upto Punjabi Praveshka standard. Persons from outside Punjab could however be considered for appointment but they will be required to give an undertaking in writing that they will acquire the requisite qualifications in Punjabi within a period of two years.

Higher start within the grade admissible depending upon the ability and experience of the candidate. House rent and Dearness allowance, Provident Fund and Medical facilities according to the University rules.

Applications complete in all respects on the prescribed form accompanied by a crossed Postal Order worth Rs. 5/- (Rs. 2/- for candidates belonging to Scheduled Caste/Tribes and Backward Classes) drawn in favour of the Registrar, Punjabi University, Patiala should reach the University by **29-6-81.** The forms can be had from the Production and Sales Officer, Publication Bureau, Punjabi University, Patiala, on payment of Re. 1/- by sending a crossed Indian Postal Order drawn in favour of the Registrar, Punjabi University, Patiala, alongwith a self addressed envelope of the size of 25 x 10 cms stamped with 30 paise postage which should be superscribed at the Top in bold letters REQUEST FOR APPLICATION FORM FOR THE POST OF——————.

Persons already in service should apply through proper channel. Government servants who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before the due date and regular applications through proper channel by **2-7-81.**

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY

KHARAGPUR

Advertisement No. R/5/81

Applications are invited for the undermentioned posts at the Indian Institute of Technology, Kharagpur, West Bengal.

I. SENIOR RESEARCH ASSISTANTS

(a) Cryogenic Engineering Centre
– 3 posts

(b) Rural Development Centre
– 3 posts

(c) Radar & Communication Centre
– 3 posts

(d) Department of Chemistry
– 1 post

(e) Department of Electronics and Electrical Communication Engineering
– 1 post

(f) Department of Physics and Meteorology
– 2 posts

(g) School of Research in X-Rays and Structure of matter (Physics Deptt.)
– 1 post

(h) Computer Centre
– 1 post

Scale of Pay

Rs. 550-25-750-EB-30-900/- plus D.A. as admissible.

Qualifications and Experience

(a) **for Cryogenic Engineering Centre**—(One post reserved for Scheduled Tribe candidate)

Essential

A first class Bachelor Degree in Engineering with two years research/Industrial experience or a good Master Degree in Science with at least two years research experience.

Desirable

Research experience in Heat and Mass Transfer/Low temperature equipment design/Low temperature Physics/ Instrumentation.

(b) **for Rural Development Centre**—(One post reserved for Scheduled Caste candidate)

Essential

A first class Master's degree in Science or in Economics, Sociology, Geography, Anthropology or a first class Bachelor's degree in Engineering (Technology), or in any other branch relevant to rural development.

Desirable

Field experience in any aspect of rural development for at least one year.

Age

22 to 35 years.

(e) **for Radar Communication Centre**—(One post reserved for Scheduled Caste candidate)

Essential

First Class Bachelor's degree in Electronics or Electrical Communication Engineering or equivalent.

OR

First class Bachelor of Engineering Degre in Materials Science or equivalent.

Desirable

M. Tech. degree in Electronics and Electrical Communication Engineering/Material Science; one year relevant research experience.

Job requirements : Research & Development work in

- (i) Microwaves and Antenna Engg.
- (ii) Electromagnets and Fibre and Fibre Communication
- (iii) Drawing and Evaluation of optical glass fibres
- (iv) Millimeter wave antenna in transmission system.

(d) for Department of Chemistry

Essential

A first class Master's degree in Chemistry with at least two year's research experience.

Desirable

Ph.D. degree in Chemistry/good research publications.

(e) **for Deptt. of Electronics and Elect. Comm Engg.**

Essential

A first class Bachelor's degree in Electronics and Electrical Communication Engg.

OR

A first class Bachelor's degree in Electrical Engineering with specialisation in Electronics.

Desirable

M. Tech. in any branch of Electronics. A research experience of a few years is desirable.

(f) **for Physics and Meteorology Deptt.**—(One post reserved for Scheduled Caste candidate)

Essential

Good academic career with a First Class M.Sc. degree with specialisation in one or more of the following :—

- (i) Electrical/Magnetic measurements
- (ii) Luminascence measurements
- (iii) Semi-conductor measurements
- (iv) Nuclear and nucleonic measurements

Desirable

(a) Ability to carry out routine type of measurements in his respective field.

(b) Ability to maintain, design, fabricate and repair apparatus in the respective field.
(c) Workshop experience
(d) Ability to demonstrate and explain experience
(e) A candidate with a doctorate degree will be given preference.

Job requirements

(i) Running, maintaining and repairing sophisticated instruments in the laboratory assigned by the Head of the Department.

(ii) Design and fabrication of new instruments and setting up of new experiments as instructed by the Head of the Department.

(iii) Carrying out routine measurements, calculations, calibrations as required as above.

(iv) Helping the Head of the Dept. or the teacher-in-charge of a laboratory under whom placed by the Head of the Dept. to carry out his research work or to research work of Research Scholar, Fellow, Associates etc. working in that laboratory.

(v) Helping in the academic programme of the Department including taking laboratory classes and tutorials of the Dept. as assigned by the Head of the Dept.

(vi) Any other work that may be assigned by the Head of the Deptt.

(g) **for School of Research in X-Rays and Structure of matter** (Dept. of Physics)

Essential

(1) A good academic career with a first class M.Sc. degree with specialisation in X-Ray and crystallography and 4 years experience in a reputed X-Ray laboratory

OR

2nd class M.Sc. degree with specialisation in X-Ray and crystallography securing about 55% marks in aggregate and D.I.I.T. or equivalent Post-graduate diploma in the field.

(2) Experience in operating and maintaining X-Ray apparatus and Cameras of all types including diffractometers.

(3) Good knowledge of dark room practice.

(4) Experience in crystal structure analysis.

Desirable

(1) Ability to carry out routine type of X-Ray analysis and conduct special precision type of experiments under guidance.

(2) Ability to design and fabricate high vacuum and electronic appliances.

(3) Workshop experience.

(4) Working knowledge in methods and techniques of molecular biophysics.

Job requirements

(1) Running, maintaining and repairing apparatus instructed by the Head of the School or any other person authorised by him.

(2) Building up of new instruments and setting up of new experiments as required by the Head or his nominee.

(3) Carrying out routine measurements, calculations, calibrations etc. as required.

(h) for Computer Centre
Essential

A first class Bachelor's degree in Electrical Engineering/Electronics Engineering

OR

Post-graduate degree in Science with exposure to Computer Programming.

Job requirements

Either sound knowledge of Modern Computer Hardware ability to diagnose faults in the digital circuits

OR

Sound knowledge of high level language like Fortran IV Cobol, PL/1 etc. and ability to debug and write programmes.

II. JUNIOR RESEARCH ASSISTANTS

(a) Cryogenics Engineering Centre —3 posts
(b) Radar & Communication Centre —1 post
(c) Department of Chemistry —3 posts
(d) Department of Chemistry (for Central Analytical Lab.) —1 post.

Scale of Pay

Rs. 425-15-500-EB-15-560-20-700/- plus D.A. as admissible.

Qualifications : Essential

Bachelor's degree in engineering in appropriate branch of study and some practical or laboratory experience or a Master's degree in Science with adequate laboratory experience in specified branch.

Age

Between 21 and 25 years.

(a) **for Cryogenic Engg. Centre** —(One post reserved for Scheduled Caste candidate)

Desirable

Research/Industrial experience in heat and mass transfer/Vacuum Technology/Electronic Circuits/Low Temperature Physics.

(b) **for Radar and Communication Centre**

Job requirements

Research and development work connected with
(i) Microwave and Antenna Engineering
(ii) Strip and Microstriplins
(iii) Millimeter wave Antenna and systems
(iv) Optical Fibre Communication.
(v) Fibre drawing.

(c) **for Chemistry Department including Central Analytical Laboratory—** (One post reserved for Scheduled Caste candidate and one post reserved for Scheduled Tribe candidate)

Specialisation in one or more of the following:—
Inorganic Chemistry/Organic Chemistry/Physical Chemistry/Instrumental Chemistry.

Desirable

Experience in research laboratories for two years. (Instrumental experience is necessary for one post)

N.B. The qualification regarding experience is relaxable at the discretion of the competent authority in the case of candidates belonging to the Scheduled Castes or Scheduled Tribes, if at any stage of selection, the competent authority is of the opinion that sufficient number of candidates from these communities possessing the requisite experience are not likely to be available to fill up the vacancies reserved for them.

Application form may be had from the Registrar on request along with an unstamped self-addressed envelope of size 23 cm x 10 cm. Application accompanied with an application fee (non-refundable) of Rs. 3.00 (Re. 0.75 for SC/ST) payable by means of Crossed Indian Postal Order to Indian Institute of Technology, Kharagpur at Kharagpur-721 302 post office should reach the Registrar, I.I.T., Kharagpur-721 302 (West Bengal) by the **4th July, 1981.**

Applicants who are in the employment of Government/Semi-Government organisation or of any Government undertaking must send their applications through proper channel.

A.K. Sur
REGISTRAR

SOUTH GUJARAT UNIVERSITY
SURAT

Extension of Last Date of receipt of Application for Teaching Posts.

In continuation of our previous advertisement dated 29th April, 1981 for the following teaching posts in the University Post-Graduate Departments, it is notified that the last date for receiving the applications is extended upto **30-6-1981**:

Sl. No.	Department	Post	Number
1.	Economics	Reader	1
2.	Mathematics/Statistics	Lecturer in Mathematics	1
3.	Sociology	Lecturer	1
4.	Business and Industrial Management	Professor	1
		Lecturer	3
5.	English	Professor	1
6.	Chemistry	Professor	1

The other details, regarding the recruitment to the above posts remain unchanged.

G.A. Desai
REGISTRAR

MEERUT UNIVERSITY
MEERUT

Applications are invited for the following teaching posts :

(A) **Reader** : One Temporary post of Reader in Physics against a leave vacancy for a period of about 10 months in the grade of Rs. 1200-50-1300-60-1900.

Minimum Qualifications for the Post of Reader

1. (a) Doctorate in the subject of study concerned or a published work of a high standard in that subject; and
   (b) Consistently good academic record (that is to say, the overall record of all assessment throughout the academic career of a candidate) with First class or high second class (that is to say, with an aggregate of more than 54% marks) in Master's Degree in the subject concerned or equivalent degree of a foreign University in such subject.
2. At least FIVE years Research/Teaching Experience in a University or a recognised Institution and should have distinguished himself as researcher and should have competence to give post M.Sc. Courses and guide research.
3. Where the Selection Committee is of opinion that the Research work of a candidate, as evidenced either by his thesis or by his published work, is of a very high standard, it may relax any of the requirements specified in No 1(b).

Specialization for the Post of Reader in Physics

Preference will be given to the candidates having research and postgraduate teaching experience in Electronics.

(B) **Lecturer** : One Temporary post of Lecturer in Botany against a leave vacancy for a period of about 10 months and one Temporary post of Lecturer in Political Science against a leave vacancy for a period of about 2 years in the grade of Rs 700-40-1100-50-1600.

Minimum Qualifications for the Post of Lecturer

1. (a) Doctorate in the subject of study concerned or a published work of a high standard in that subject; and
   (b) Consistently good academic record (that is to say, the overall record of all assessment throughout the academic career of a candidate) with First class or High second class (that is to say with an aggregate of more than 54% marks) in Master's Degree in the subject concerned or equivalent degree of a foreign University in such subject.
2. Where the Selection Committee is of opinion that the Research work of a candidate, as evidenced either by his thesis or by his published work, is of a very high standard, it may relax any of the requirements specified in No. 1(b).

(i) **Desirable for the post of Lecturer in Botany** : Postgraduate teaching (experience in Mycology, Microbiology and Plant Pathology; Molecular Biology, Cytogenetics; Pteridophytes.

(ii) **Desirable for the post of Lecturer in Political Science** : Specialization in Empirical and quantitative studies in Political Science.

Note : For the above mentioned posts of Reader in Physics and Lecturers in Botany and Political Science other things being equal, preference will be given to Scheduled caste/Tribe candidates who are considered fit. Such candidates should indicate in their application that they belong to Scheduled Caste/Tribe and attach certificate to that effect from the District Magistrate of the District to which they belong. No other certificate for this purpose will be entertained.

Application on the prescribed form, available on request (accompanied with a self addressed envelope of size 23 x 10 cm and stamped for Re. 0.80 p.) free of cost from the Assistant Registrar (Academic), Meerut University, Meerut with relevant testimonials, publications etc. accompanied by a Bank Draft of Rs. 7.50 payable to the Finance Officer, Meerut University, Meerut should reach the Registrar, Meerut University, Meerut by **9th July, 1981**. The candidates who are in service must send their applications through proper channel.

V.B. Bansal
REGISTRAR

Indian School of Mines
DHANBAD

Advt. No./420003/81/Estt **May 19, 1981**

1. The Indian School of Mines, a 'deemed university' under UGC Act invites applications for recruitment to the under mentioned faculty position :

	Department	Post	Specialisation/ Background
(a)	Industrial Engg & Management	Asstt Professor (against NMDC Chair, currently for four years)	General Management (with orientation in Organisation Development).

2. **QUALIFICATIONS**

(a) Good academic record with a Doctor's degree in a relevant field : Provided that candidates not possessing Ph.D. may be considered if they have to their credit suitable published or design/development work in an institution or in an industry.

(b) About five years experience of teaching and/or research and development of which three years should have been as Lecturer or in a position of responsibility.

(c) Evidence of having been actively engaged in (i) research or (ii) innovation of teaching methods or (iii) production of teaching material.

OR

In the case of posts in Engineering subjects, candidates from the industry or professional fields should possess good academic record with recognised professional work of about seven years.

3. **PAY ALLOWANCES AND AGE LIMITS**

Upper age limit : 40 years..

Scale of Pay : 1200-50-1300-60-1900 (plus allowances as admissible to GOI employees). Total emoluments at the minimum and maximum of the scale currently come to Rs. 1810/- and Rs. 2450/- respectively.

A higher start in the scale may be given in special and deserving cases. Upper age limit relaxable in respect of candidates otherwise considered specially suitable.

4. Detailed information and prescribed application form may be obtained free of charge from the office of the Registrar, Indian School of Mines, Dhanbad-826004, by sending a self-addressed envelop (of size 30 cm x 12 cm) duly affixed with stamps worth Rs. 3.45.

5. The application in the prescribed form complete in all respects should reach the undersigned on or before **30.6.1981**.

S.P. Varma
REGISTRAR

UNIVERSITY OF ROORKEE

ROORKEE

Advertisement No. Estt.(A) 19/6/81 **Dated 1-6-81**

University of Roorkee, was established in 1949 as a result of reorganisation of the former Thomason College of Civil Engineering founded in 1847. Located near the scenic foothills of the Himalayas, the University has a residential campus of 355 acres, close of Dehradun, Haridwar and Meerut, and 170 km. north of Delhi. With rich traditions, the academic departments include Architecture and Planning, Civil, Electrical, Mechanical and Industrial, Electronics and Communication, Chemical and Metallurgical Engineering and Pulp and Paper Technology. There are well developed research and training facilities in Earthquake Engineering, Water Resources Engineering and Hydrology. The University also has departments of Mathematics, Physics, Chemistry, Earth Sciences, Computer Science and Humanities. Interdisciplinary Centre have been set up in the areas of Energy, Industrial Management, Biosciences and Environment. Regional Computer Centre with DEC-2050 system is in operation on the Campus. University Service and Instrumentation Centre has been set up as central facility for sophisticated equipment and instrumentation design. The present strength of enrolment of students in undergraduate classes is 1500 and in postgraduate classes 1000. The number of Ph.D. students in 200.

Applications for the following posts are invited on the prescribed form obtainable from the Registrar, University of Roorkee, Roorkee, U.P. by sending a self addressed 9" x 4" envelope affixed with Rs. 1.10 stamps, by **30-7-1981** (30-8-81 for candidates from abroad).

Sl. No.	Department	Professor (Rs. 1500-2500)	Reader (Rs. 1200-1900)	Lecturer (Rs. 700-1600)
	ACADEMIC POSTS			
1.	Chemistry	1	1	2
2.	Chemical Engg.	—	3	5
3.	Civil Engg.	1	9	8
4.	Elect. and Comm. Engg.	3	2	10
5.	Earth Sciences	1	3	6
6.	Earthquake Engg.	2	4	7
7.	Electrical Engg.	4	6	3
8.	Humanities and Soc. Sciences	—	—	1 (Eco.)
9.	Mechanical and Industrial Engg.	—	5	6
10.	Mathematics	—	—	5
11.	Metallurgical Engg.	—	3	1
12.	Water Resources Dev. Training Centre	1	1	—
13.	Bio-Sciences	—	1	—
14.	Continuing Education	—	1	—
15.	Quality Improvement Programme Centre	1 (Prof. & Coordinator)	—	—
16.	Industrial Management Centre	1 (Management)	—	—
17.	Computer Centre	1	—	1
18.	Energy Technology	1	—	—
19.	Institute of Paper Technology, Saharanpur	2 (Prof. Chem. Engg./ Pulp & Paper)	3 (Pulp & Recovery/ Paper/Elect. & Ins.)	3 (Pulp/Recovery/ Chemical)

ADMINISTRATIVE AND OTHER POSTS

1.	Director Technical Publications	1	Scale Rs. 1500-1800
2.	System Manager Hardware/Software	1	Scale Rs. 1100-1600
3.	University Architect	1	Scale Rs. 700-1600
4.	Programmer	2	Scale Rs. 700-1300
5.	Assistant Engineer (Instrumentation)	1	Scale Rs. 550-1200
6.	Jr. Instructor Mechanical Engg. (For I.P.T., Saharanpur)	1	Scale Rs. 550-1200

PESCRIBED QUALIFICATIONS AND EXPERIENCE FOR TEACHING POSTS

QUALIFICATIONS FOR ENGINEERING DEPARTMENT

PROFESSOR

Qaulifications : Essential

(a)A Doctor's degree and published work of high standard. (b) Consistently good academic record with at least I Class at Master's or Bachelor's level. (c) Experience in guidance of research, preferably at Ph.D. level. (d) 12 years' experience of teaching/research/design and industry in appropriate field with at least 5 years in teaching/research.

Desirable

(a) Teaching experience in an Institution of University level. (b) Specialised industrial experience in the appropriate field.

READER

Qualifications : Essential

(a) A Doctor's degree OR A Master's degree with published work of high standard. (b) Consistently good academic record with at least I Class Master's or Bachelor's level. (c) 7 years' experience of teaching/research/design and Industry in appropriate field with at least 2 years' experience in teaching/research.

Desirable

(a) Experience in guidance of research. (b) Teaching experience in an Institution of University level. (c) Published research work.

NOTE: A Candidate selected for Reader's post who does not hold a Ph.D. must acquire the same within 5 years of his appointment failing which he will cease to draw the annual increment until he acquires the Ph.D. degree.

LECTURER

Qualifications : Essential

(a) A Master's degree. (b) Consistently good academic record with I Class at Bachelor's degree and/or Master's degree level. (c) One year's relevant professional experience outside academic/research Institutions.

NOTE: 1. A Candidate selected for teacher's post who does not hold a Ph.D. must acquire the same within 7 years of his appointment failing which he will cease to draw the annual increment until he acquires the Ph.D. degree. 2. Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a period of 5 years of his appointment failing which he will not be able to earn future increments, until he fulfils this requirement.

QUALIFICATIONS FOR SCIENCES, HUMANITIES AND SOCIAL SCIENCES DEPARTMENTS

PROFESSOR

Qualifications : Essential

(a) A Doctor's degree and published work of high standard (b) Consistently good academic record with at least I Class at Master's or Bachelor's level (c) Experience in guidance of research preferably at Ph.D. level. (d) 12 years' experience of teaching/research.

Desirable

(a) Teaching experience in an Institution of University level.

READER

Qualifications : Essential

(a) A Doctor's degree. (b) Consistently good academic record with at least I Class at Master's or Bachelor's level. (c) 7 years experience of teaching/research/design and industry in appropriate field with at least 2 years experience in teaching/research.

Desirable

(a) Published research work. (b) Experience in guidance of research. (c) Teaching experience in an institution of University level.

LECTURER

Qualifications : Essential

(a) A Doctor's degree. (b) Consistently good academic record with at least I Class at Master's or Bachelor's level.

Desirable

(a) Teaching experience in an Institution of University level.

NOTE: If a candidate for Lecturer's post possessing a Doctor's degree of equivalent published work is not available or is not considered suitable, a person possessing a consistently good academic record (due weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed on the condition that he will have to obtain a Ph.D. degree within 7 years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements.

OTHER POSTS

1. DIRECTOR TECHNICAL PUBLICATIONS

Qualifications : Essential

(a) A Doctor's degree with Master's or Bachelor's degree in Engineering or a Master's degree with published work of high standard. (b) 10 years experience of teaching/research design or construction in any branch of the profession related to Water Resources Engineering.

Desirable

(a) Proficiency in language with a flair for writing, experience of technical publishing. (b) Experience in teaching in an Institution of University level.

2. SYSTEM MANAGER HARDWARE/SOFTWARE

Qualifications : Essential

Master's or P.G. Diploma in Computer Tech./or Master's degree in Engg./or Ph.D in Science.
Specialised experience in Computer Hardware/Software

Experience

7 years experience of teaching/research design and Industry/System Management/System Hardware/System Software.

3. UNIVERSITY ARCHITECT

Qualifications : Essential

(a) B.Arch. with good academic record. (b) At least 3 years experience in the field of Architecture.

Desirable

Master's Degree.

4. PROGRAMMER

Qualifications

Master's or P.G. Diploma in Computer Tech./or Master's degree in Engg./or Ph.D. in Science. Specialised experience in Computer Software.

Experience

At least one year's experience in Computer Software. Working knowledge of higher level/assembly language.

5. ASSISTANT ENGINEER (INSTRUMENTATION)

Qualifications

Bachelor's degree in Electrical/Electronics or M.Sc. (Physics) with 2 years research experience in experimental physics. Candidates having experience on working of sophisticated instruments will be preferred.

5. JUNIOR INSTRUCTOR MECHANICAL ENGINEERING

(For I.P.T., Saharanpur)

Qualifications : Essential

At least high second class Bachelor's degree in Mech. Engg. or equivalent.

Desirable

(a) Master's degree in Mechanical Engg. (b) Experience in teaching/Research/Consultancy/Paper Industry in the field of Mechanical Engg.

NOTE:
1. Candidates who have applied for the post of Professor Electrical Engg in the specialisation System Engg. and Operational Research mentioned above against our Advt. No. A/18/12/80, dated 11.12.80, need not apply again.
2. Where the number of posts in Two, One is reserved for Scheduled Castes/Scheduled Tribes.
3. Other details required for various posts alongwith specialisation etc. will be supplied alongwith application form.
4. Applicants who are in the employment should send their applications through their employer.

Dr. O.N. Chaturvedi
REGISTRAR

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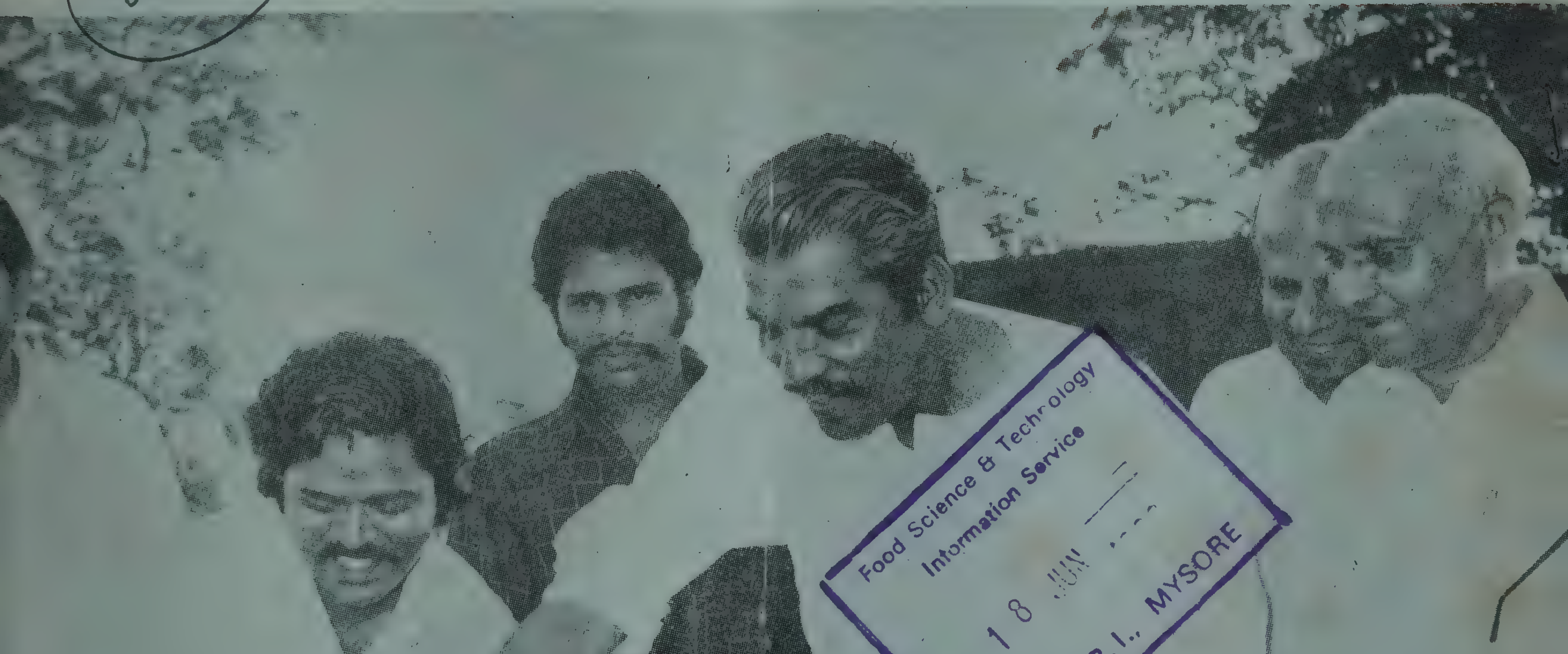

Food Science & Technology
Information Service
18 JUN
C.F.T.R.I., MYSORE

Shri Baby John, Education Minister of Kerala, laying the foundation stone of the Administrative Block of Cochin University. On his left is Dr. M.V. Pylee, Vice-Chancellor of the University.

ASSOCIATION OF INDIAN UNIVERSITIES PUBLICATION

TECHNICAL TEACHERS' TRAINING INSTITUTE

(SOUTHERN REGION) ADYAR MADRAS-600 020

Advt. No. 2/81

18 June, 1981

Applications are invited in the prescribed form for the following posts:

Posts and Scales of Pay	Qualifications	Experience
1. **Professor of Education** (1 No.) Rs. 1500-60-1800-100-2000-125/2-2500. **Age**: 35 to 48 years	First Class Master's degree/Ph.D. in Education with Master's Degree in Teaching/Science/Arts	Minimum 7 to 10 years distinguished experience in Teaching/Research in an institution of University standard at Post-graduate level or in a Teachers' Training Institute OR 15 years of teaching experience in a polytechnic or engineering college, out of which atleast 6 years must have been at the level of Principal or Head of the Department in a Polytechnic or other equivalent cadres.
2. **Professor of Extension Centre** (1 No. & 2 more likely to arise) Rs. 1500-60-1800-100-2000-125/2 2500. **Age** : 35 to 48 years	First Class Master's Degree/Ph.D. in Engineering	-do-
3. **Assistant Professor of Mechanical Engineering** (1 No.) Rs. 1200-50-1300-60-1900 **Age**: 30 to 45 years	First Class Master's Degree/Doctorate in Mechanical Engineering	Minimum of 5 years experience in Teaching/Research in an institution of University standard or in a Teachers' Training Institute OR 10 years teaching experience in a polytechnic or engineering college out of which at least 3 years should have been at the level of Lecturer in a polytechnic or other equivalent cadres.
4. **Lecturer in Education** (1 No.) Rs. 700-40-1100-50-1600. **Age** : 25 to 35 years	Doctorate Degree in Education/Psychology OR M.A. Ed/M.Sc. Ed OR M.Ed. with Post-graduate degree in Arts/Science preferably in Psychology	2 years Teaching/Research experience in any institution of University standard OR 3 years teaching experience in Teachers' Training College/Educational research cells.
5. **Production Assistant** (1 No.) Rs. 700-40-900-EB-40-1100-50-1300 **Age**: Below 35 years	Degree in Engg. with a Diploma or a Cert. in Media Production. OR Master's Degree in Science/Arts with Dip/Cert. in Media Production. OR Master's Degree in Science/Arts with B.Ed./B.T. having specialisation in Media Production.	Atleast 2 years experience in one or more of the following areas: (i) Television programme production; (ii) Film programme production; (iii) Production of Audio visual programmes for instructional purposes (e.g.) Graphics, filmstrips, broadcasts etc.

NOTE: For all posts, Educational qualifications in lieu of longer period of experience and experience requirements in lieu of better educational qualifications are relaxable in case candidates with the prescribed qualifications and experiences are not available. In case suitable candidates are not available for posts advertised, they may also be considered for the next lower post. Age is also relaxable in suitable cases.

All posts carry usual allowances as applicable at present to the employees of the Central Government. Preference will be given to SC/ST candidates if they are otherwise qualified for all the posts. Those who are already in service may also be considered on 'Foreign service terms'.

The Institute reserves to itself the right to alter the number of posts, to fill or not to fill any or all the above posts, and to call or not to call the candidates for interview.

Application form together with 'Instructions to candidates' and detailed qualifications, experience, job description etc. can be obtained from the Principal of the Institute on requisition with a self-addressed envelope (23 x 10 cm) duly affixing postage stamps to the value of Re 1.20 p.

Applications duly completed in all respects should reach the Principal on or before **31.7.1981.**

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Editor : ANJNI KUMAR

Lab to Land Programme Towards Progress

M. P. Gupta*

Lab to Land Programme of I.C.A.R. is in operation in Himachal Pradesh Agricultural University for the last two years and is showing promising results.

Under this programme 950 families have been adopted and out of which 310 families are located around Palampur Campus and the remaining around Solan Campus and other research stations of the University. According to Programme Co-ordinator, Palampur, ten teams of 4-5 University scientists were formulated to select 31 small, marginal farm families and agricultural labourers from each village Rajpur, Tanda, Bandla, Banuri (lower and upper), Molichak, Bandbihar, Deogran, Patti and Saliana in District Kangra, with an ultimate aim to uplift them. The teams have been visiting the selected families once in a week to provide guidance and help in farming and allied enterprises on their door-steps. The university students have also been involved in Lab to Land programme through 'Interdisciplinary Extension Club' set up by the Department of Extension Education. About 500 soil samples of the farmers were got tested under this programme. Many demonstrations were laid out and training camps were organised by experts to motivate and educate farmers in modern methods of Agriculture, Horticulture and Animal husbandry. In order to enable farmers in the adoption of economically viable farm technology, all the critical inputs like fertilizers, weedicides, insecticides/pesticides, fruit plants, poultry birds and vegetable seeds were disbursed among selected families. Consequently, twenty five poultry units, each consisting of 12-25 birds, twenty kitchen-gardens and three piggery units have been established. A large number of farmers were helped in getting credit facilities from the banks. The adopted families have been greatly impressed with the increase in the yield of the different crops as a result of the adoption of improved practices. Farm women were also covered under Lab to Land programme in Bandla, Panchrukhi and Rajpur villages. They were imparted training in food nutrition, child care and home management on scientific lines by the home science staff.

Inspired from extension activities under Lab to Land programme in the vicinity of the University, Pardhans of far-off villages approached programme Co-ordinator, for including their villages under this programme. The university scientists revealed that Lab to Land programme not only provided face to face opportunity to impart 'know-how' and 'do-how'

(*Continued on page 366*)

**Associate Professor of Extn. Edn., H.P. Agril. University.*

English for Specific Purposes : An Essay in Academic Concept and Constraints

R. K. Singh*

Though the English language teaching is riddled with so many distinctions like EAP (Curriculum oriented, and concerned with development of communication skills required for study purposes in formal education), EST (EAP's key-area), EOP (activity oriented, and concerned with communication abilities *a la* the demands of specific occupations such as medicines, commerce, technology, tourism, etc.) EFL, ESL, mother-tongue-teaching, etc. etc., it is doubtful whether the students attach any importance to such divisions. I agree with Hutchinson and Waters' view in this regard: "The concomitant notion that each of these 'so-called' specialisms call for widely differing approaches and resources is perhaps the most dangerous result of such labelling".

But one of the positive outcome of theorists and practitioners, growing interest in the problems and difficulties of language learners is the reshuffling of most of the issues, thus opening up every part of the ELT profession to re-examination.

English for Specific Purposes (ESP) is English teaching of any kind placed in relation to its context. It highlights a sophisticated approach to the needs of the adult-students in the field of language skills that are directly related to their work. It also implies, to quote Professor Sinclair, "that particular skills and knowledge can be specified in relation to a purpose, and that the goals of language learning can be selective". In the context of Indian institutions, ESP stands for the felt need for a functional command of English for academic purposes for students beginning advanced scientific/engineering training.

An effective management of ESP teaching entails, first, a proper understanding of students' language *needs*, which means, one needs to know what and how they require to communicate with each other, at what level, and whether in speech or in writing. One also needs to know students' educational background and history of learning English, their aspirations, and the place English occupies in their long-term plans. A knowledge of their expectations of an English class and syllabus is also necessary. Wanting to learn English is no longer a major motivation, nor is ESP in itself a reliable motivation.

Then, one also needs to consider the local circumstances that have a distinct bearing on the success or failure of the language teaching. One has to consider the factors like the time-tabling, size of the class, conventions of teaching and learning, availability (and use) of audio-visual aids, administration's attitude towards English language teaching (or learning), government's language policy and society's attitude towards English studies, the immediacy of the demand for the language in other parts of the curriculum, the relationship of English to other subjects, the professional status of the teacher teaching it, etc. There is also a lot of emphasis given to target situation analysis as a curriculum design pre-requisite. Then comes the actual practice in an ESP classroom.

But, first, a few words on the constraints that an average English teacher faces in our country. He has *no time* to analyse his students' knowledge and ability though he can readily presume that they have already attained a certain level of language skills competence (just as the ESP material producers presume), and therefore, they can understand and communicate" the new complex of knowledge" other subject teachers might give. He confines himself to the ESP text-books to refine and develop their existing knowledge and abilities *for a desired purpose*. For, in the academic hierarchy he has minimum opportunity to innovate or even suggest things that are right or appropriate. For various non-academic or administrative reasons, he closes his eyes to the classroom actualities.

Another serious constraint is the inadequate syllabus that an English teacher is asked to follow. A good syllabus usually sets the tone of the course it defines. It sets out the basic frame-work of students needs, problems and expectations for teachers. It also sets goals and defines possible ways of reaching these goals within the given administrative and human environment. Since it relates the present to the future, both for the teacher and the taught, it is something which exists in the real world and is subject to the constraints of the real world.

Often there is no systematic relationship between teaching techniques and syllabus design and content. There is hardly any attempt to balance "what is needed" and "what is possible". Most English syllabuses in our country fail to accurately define what is 'needed', nor do they 'design' what is needed as realistically as possible. Since the teacher has too little time and often too large and too many classes to engage, he is too overworked to give perfect results or even to consider the abilities of his students.

Coming back to ESP. The aims and objectives are fixed in view of the students' needs. The ESP class is not to equip the students with the native speaker's linguistic competence. Our aim can't be the study and mastery of the 'authentic English' (which the native speakers use among themselves). "Ability to communicate in English is not necessarily to be judged in terms of ability to communicate

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**Lecturer in English, Indian School of Mines, Dhanbad.*

with native speakers in English". (W.R. Lee) In fact, native speakers' competence is unattainable in the environment of local languages. Therefore, the teaching-learning goals should be realistic.

Since English teaching at secondary level has no consideration either for students' immediate interests or long-term needs, teachers at universities (technical or non-technical) or tertiary level have to teach students (who have inaccurate and inefficient English) with a sympathetic understanding of their needs, whatever the ELT theory and practice, fashion and style, or view and opinion. They demand an extension of vocabulary and idiom, but what they actually need is re-teaching of the basic structures of common-core English. Often their demands are in direct conflict with their needs. An ESP course involving specialised language skills can only follow on from a thorough grounding in basic English.

A language teaching course for specific purposes need not be very ambitious. The objective may be to enable the students use normal English, i.e. understandable, appropriate in expression, and syntactically correct. The ESP teacher's concern is to facilitate communication on a technical or engineering topic, and not to teach English as such. Allen and Widdowson suggest that the English course at this level should aim at developing two kinds of ability. "The first is the ability to recognise how sentences are used in the performance of acts of communication, the ability to understand the rhetorical functioning of language in use. The second is the ability to recognise and manipulate the formal devices which are used to combine sentences to create continuous passages of prose. We might say that the first has to do with the rhetorical coherence of *discourse*, and the second with the grammatical cohesion of *texts*".

What is not appreciated by most ESP-ists is, to quote Hunchinson and Waters, "*what the students are expected to cope with* should not be confused with *what the students require in order to cope*". If a mining or petroleum engineering students is expected to understand an academic topic, it is necessary to examine his *underlying competence*, i.e. his ability to receive and transmit information effectively. English to him is just a *means* and not an *end*.

A reasonably intelligent native speaker of English will have no problem coping with his academic text, since he has the basic competence for any effective use of language, and he can interact with his teacher (or the academic texts) in the transfer of knowledge. But the E S P teachers "need to look at what the native speaker student brings to the target situation in terms of his Total Competence and then consider this in the light of what happens in the technical classroom in order to discover what elements of Total Competence are exploited and activated in the target situation".

Now, what baffles an average teacher of English is that the ESP needs are identified and analysed but all isolated from the total teaching learning situation. A typical ESP lesson is built around a text of a specialised nature, often boring both to the teacher and taught. The result is : no genuine communication takes place among the members of the class. Everything is imaginary and probably tied to the text in the book, which is neither congenial to the teacher nor interesting to the students. As the ESP teacher does not know (nor is he supposed to know ?) the technical subject matter he is using to teach language, he cannot participate or actively encourage (for fear of his own failure) any *discussion* of the subject-matter which is possibly so necessary for any lasting language assimilation and/or for enabling students to actually exploit language.

Another reason for the failure of the ESP textbook is that all the skill elements of language learning, the strongest motivating factor, cannot be represented in a book. Moreover, most teachers and textbook writers seem not to be aware that the material of the language lesson is not language, but real life.

A necessary part of the process of using a language is fitting it into the appropriate context. It is, therefore, not logical to teach it in situations which involve no contexts and consequently call for no communication, no carrying of feeling or thought. The ESP lessons hardly provide any contextual clues to students to effectively exploit the language resources.

It is however possible to create situations—real, easily recognised and concrete—which can be of interest to both the teacher and students. There seems no need of subject specfiic ESP materials but general technical text (without the technological bias) in everyday normal English, understandable to technically-minded layman rather than the specialist. Also the technical texts do not exemplify the technical discourse since these do not represent the greater part of technical communication.

In place of the dense scientific or technical subject matter, requiring specialist scientific or technical knowledge and understanding, the ESP text may be built round general ecological/environmental subject-matter which may be possibly or interest to both the teachers and students, and of course, without requiring any specialist knowledge on either's part. The exercises may provide such problems which the students could solve themselves by using English.

The success of a teacher is often the result of his general teaching skill rather than the genuine appropriacy of the teaching material. My point is: a language teacher should not be a slave of the textbook. He should be free to select items which he needs, and to reject those which are inappropriate. A textbook may be helpful but the teacher has to complement the textbook with his own ideals and modify the content to suit his own teaching style, the needs of his students or the constraints and advantages of the circumstances. An English teacher has to adapt in (a) the individualising of material, (b) modifying a text for purposes not intended or anticipated by the author, and (c) compensating for textbook defects. He is no specialist in that he is first a teacher who is sensitive to the needs of his students. □

Drugs And Doctors

Tejinder Singh*

N. N. Laha**

It becomes distressing to talk about diseases with doctors as their causative agents. To save our skin, we seek shelter in a word 'Iatrogenic' with the firm belief that the patient will not take the botheration of consulting a dictionary to find that 'Iatros' is a Greek word for physician & 'genetic' means produced by. The saying 'Physician heal thyself' could be modified and stated in terms of him manufacturing diseases rather than healing them.

During the last few decades, picture of diseases, like everything else, has changed considerably. Old ones like small pox and scurvy have either already vanished or will shortly vanish into oblivion; but new diseases are constantly taking their place. The new are replacing the old, something good in the usual sense but not in terms where diseases are concerned. The inn that shelters for the night is not the journey's end—many of the new diseases are the result of well meant, but injudicious use of drugs.

Take antibiotics for example, the longest feather of a doctor's cap. They are the most effective weapons against the microbes. Typhoid, tetanus, pneumonia, meningitis and tuberculosis would have continued to take their toll, but for these. In the good old days, it was believed that if we can sterilize the intestines, rather the whole system, it would be a great achievement—man's life span would be prolonged. So far so good, but now we know that the supply of vitamin E, K, Nicotinic acid and many others is based on these bacteria, and so their destruction will, certainly be, less than fair to us. Therein lies the importance of 'correct and careful use' of antibiotics. Next page of this story is secondary infection with resistant bacteria. Trouble does not end here—otherwise susceptible bacteria may also become resistant. To cite the example of gonococci—they were highly sensitive to sulphonamides but soon they started becoming resistant and now they are resistant even to penicillin and tetracyclines. Reason, these drugs were indiscriminately used, even for minor ailments, which last one week if treated, and 7 days if untreated. It is not uncommon to find sensitivity reports of patients showing organisms resistant to all antibiotics, a sad and dreaded achievement by injudicious use of antibiotics. A rather comic (which may even be dangerous) situation comes up when doctors write an antibiotic, even its dose, but no duration. The unfortunate patient continues to take the antibiotic for ages till he comes again to the doctor for a re-checkup or with a complication of the drug. Sometimes, in the reverse gear a patient takes antibiotics for lesser duration and thus develops resistance for the future.

Corticosteroids, to take another example, are being prescribed in every alternate prescription, rather one can call it a 'fashion' amongst prescriptions. True, that they give a dramatic relief, but most are not aware of the danger of their sudden withdrawal. There are cases on record, where missing a dose or sudden cessation of therapy has created a life threatening situation.

Antidiarrhoeals, to take another example, are indiscriminately used for all types of diarrhoeas—because drugs, in our country, are available over the counter like candies. Studies have shown that drugs like diidoquin can cause neuritis and optic damage. Diphenoxylate which is so widely used in infantile diarrhoeas due to marked symptomatic relief has been shown, not only to be harmful but even fatal. This is because, the cause of death in diarrhoeas is dehydration and diphenoxylate does not prevent dehydration. It simply paralyses the gut and depresses the respiration when given in excessive doses.

Seeing this state of affairs, it is little wonder that old maladies are being constantly replaced by newer man made ones, and a multitude of antigens has appeared on the scene-probably to outnumber the pathogens also.

Almost every poison in small doses is a drug and every drug in large doses is a poison. The way our science interferes with nature, there is little wonder that we have to pay the penalty as iatrogenic diseases. There is no drug with a single action and no patient with a single response—the classical example being penicillin; one can tolerate 100 lac units daily while other may develop allergic reaction by mere handling of a penicillin tablet.

Products of the research of medical science are like double edged swords. Chlorpromazine could have been of greater use in behavioural disorders but for the extrapyramidal side effects. Disfigured teeth following tetracyclines in children is too well known a fact. The use of drugs in pregnancy has also become indiscriminate. One always trends to forget the small life inside the uterus. It needs more care than others. But doctors prescribe drugs without bothering for the effects on the foetus. A common example is aspirin in pregnancy causing congenital heart disease—the thalidomite catastrophe has brought the problem to a climax.

Even today, we have to admit that the subject for exceeds our understanding—we still do not know why one develops cancer, why cancer is more common in stomach, but so rare in adjoining duodenum and many more. Otherwise too, most commonly we know the technique but not its outcome with the result that so often we do not use on us, what we are always willing to use on others. Telling example is surgical treatment of peptic ulcer—a doctor has yet to undergo gastrectomy or vagotomy, although the doctors are the largest sufferers of peptic ulcer.

Most of the times, the fault is shared by the patient also. Many a times, a patient presents with vague complaints, for which no organic basis can be found even by most careful clinical or laboratory

(Contd. on page 366)

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*Post Graduate Student in Paediatrics.

**Lecturer in Medicine, G.R. Medical College, Gwalior.

CONVOCATION

Challenges Facing NEHU

Conventionally the primary objectives of a university are to impart knowledge and training and carry on research in frontier areas. This concept, however, is gradually changing. The objectives of this University have been made explicitly clear through section(4) of the NEHU Act 1973 which reads as follows:

> "The objective of the University shall be to disseminate and advance knowledge by providing instructional and research facilities in such branches of learning as it may deem fit; to pay special attention to the social and economic conditions and welfare of the people of the Hill Areas of the North-Eastern Region and in particular their Intellectual, Academic and Cultural advancement".

It shall be the endeavour of all of us connected with this University to see that these noble objectives are fulfilled.

I was happy to see when I scanned through the list of faculty members that they have been drawn from all parts of India. I learn that a majority of the faculty members are very young. This is a pleasant surprise to me since I would have thought that a new university in a relatively isolated area would find it difficult to attract young people. This augers well for the University since it ensures a youthful, enthusiastic and dynamic approach to the development of this University.

We have in India universities of different ages; some of them like the Madras, Calcutta and Bombay universities are more than 120 years old. There has been a substantial increase in the number of universities after independence. We have 88 traditional universities, 20 Agricultural Universities and 10 Institutions deemed to be universities. These are geographically well distributed over India. The problems concerned with the Indian Universities and Higher Education in general are complex and somewhat controversial.

When I look at all our achievements, success, plus-points in our National Life—be it in the field of Science and Technology, Agriculture, Industry, Administration, Public Service, etc. and ask the question from where did all the men responsible for these successes come from? The inevitable answer is that they are all the products of our universities. Among these we have our political leaders, the civil servants, the jurists, the legislators, the engineers, the scientists, the businessmen in all walks of life and activity. May be a small fraction of them have had the opportunity to study abroad for a few years and some of them might have made occasional visits. But by and large, the manpower behind all our achievements is drawn from the Indian Universities. This is true in the field of Atomic Energy, Space Technology, Electronics, Steel Industries, Chemical Industries, Pharmaceuticals, Petrochemicals whatever field you may envisage, which calls for academic or technical expertise. It is also well known that many of the students who have passed out of our universities are doing extremelly well in foreign countries. As you know, medical doctors from India are in great demand practically in all corners of the world.

At the same time I am also aware of the criticisms and the shortcomings of our Universities—falling standards, incompetent teachers, frustration among the teaching staff; thousands of graduates in Arts, Science, Law, Commerce rolling out each year from the universities which have been dubbed as "Degree Factories" with poor prospects of employment; studene-stirs on and off the campuses; political interference in matter of admission of students, demand for reforming the examination and evaluation systems, overloading of curricula, lack of suitable buildings, hostels and social amenities, inadequate libraries, inadequate facilities for research; lack of opportunities for visiting other Institutions in the country and abroad; low pay scales etc., etc. Many types of solutions have been suggested—some of these are radical. Some educationists feel that the circumstances prevailing in India are totally different from what is prevalent elsewhere in the world, and therefore we should find solutions on our own and not be guided by the systems successful somewhere else. There is a very strong feeling that our university educational pattern is such that it alienates the students from their own surroundings where their services are most required after the completion of their education. Some feel that we should take a holistic approach and should not look at higher education alone; we should look simultaneously at the elementary and secondary education, the graduate and post-graduate education. Some have suggested the adoption of sophisticated technologies, the liberal use of Radio. Television and Video-Tapes and perhaps even satellites for solving the education problems. It is generally recognised that the most serious problem we are facing is one of numbers. The number of students in the colleges and the universities has risen from a few lakhs in the early 50s to about 100 lakhs in the 80s with the trend that the number may go to 300 lakhs in the 90s.

The minimum qualifications for a college teaching being a Master's Degree, to cope with this large influx of students we require at least 5 lakh teachers with Master's Degree. The current output from the universities is about 50,000 per year. Therefore, even providing the teaching staff to the college has become an insurmountable problem.

In the context of increasing numbers, there have been suggestions that Higher Education should be restricted only to those who are academically talented. It is felt that the vast numbers who are crowding in from the point of view of just getting a Degree to be able to get a job should be stopped from doing so by changing the current norms that even for secretarial jobs the minimum requirement is a degree in some subjects. The suggestion is also there that there should be increased emphasis on vocational training by having more Polytechniques.

This problem of numbers is not so simple. We have to determine the optimum numbers in different disciplines taking a realistic view of our requirements in the larger context of National Development.

It may be pointed out that a country like Japan which has one-fifth of our population produces annually as many medical doctors as we do and three times the number of engineers. At the same time there is also a general criticism in India that Higher Education has been allowed to grow at the expense of elementary and Secondary Education. It is true that Higher Education has been growing at the rate of 12% while Primary Education has risen at 4.5% and Secondary Education at 8%. Inspite of this high rate of growth of Higher Education, I must point out that only 4% of the boys and girls in the age group 17-23 are getting the benefit of Higher Education today.

Clearly to solve the problems of Education what is required is a much larger financial outlay. How can we raise more finances for education unless the country becomes rich ? How does a country become rich ? Only through a fuller exploitation of its Natural Resources, higher level of Industrialisation and increased exports. All this again calls for more trained manpower. So we come back to the question of education. This emphasises the importance of the role of Education in Natural Development.

In planning the future of NEHU we have to take into account these general problems of the University Education that have become apparent from the experience of the functioning of the various universities in the country. It is no doubt true that the problems of NEHU are somewhat different at the moment, especially since it is a young university and has to operate in three well separated campuses, that too in a hilly region. The ambitions and aspiration of each of these Areas have to be recognised and the developmental strategies suitably worked out. In connection with the Fifth Plan Development proposals, the University Grants Commission (UGC) had set up a Visiting Committee to examine in depth the proposals of the North-Eastern Hill University and suggest measures for promoting teaching and research, Interdisciplinary approaches to studies and learning. This Committee which visited the different campuses of NEHU has made in December 1976 a number of observations and recommendations regarding the steps to be taken for socio-economic development of the North-Eastern Region, inter-institutional co-operation, inter-disciplinary approaches, campus development in Nagaland and Mizoram, the role of the University in the development of colleges, improvement of Libraries, Administrative procedures and examination reforms. I am sure the University Authorities must have already implemented many of these recommendations. I understand that the College of Agriculture at Medsiphema, Nagaland, started functioning in October 1978 and in this College special emphasis is being given to Hill Agriculture. The University has also started Post-Graduate Course in English literature and Education in Nagaland. In Mizoram, Post-Graduate teaching in English, Education and Economics has been started. It is encouraging to note that more and more tribals are entering the different disciplines of the University. Considering the progress, NEHU has made in the last seven years, and the dedication with which the faculty members are serving the University, I do feel very optimistic about realising the aims and objectives of this University in a short period.

[*Excerpts from the convocation address delivered by Dr. H.N. Sethna, Chairman, Atomic Energy Commission at the NEHU, Shillong*].

ASSOCIATION OF INDIAN UNIVERSITIES

Applications are invited from College/University Teachers for admission to the Third BASIC LEVEL CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY AND EXAMINATIONS. The duration of course will be six months (Ist August 1981 to 31st January 1982). The course will be offered from different Regional Centres like Delhi, Bombay, Madurai and will be conducted by the Research Cell of the Association. A personal 'contact programme' at the centres is also planned.

Requests for prospectus and prescribed application forms, accompanied by a crossed Indian Postal Order for Rs. 5/- drawn in favour of the Association and a self addressed stamped envelope (50 paise) should reach the undersigned. The last date for receipt of applications in the prescribed form will be July 15, 1981 for non-sponsored candidates and July 31, for sponsored candidates.

Director of Research
Association of Indian Universities
6, DDA Building, Nehru Place,
New Delhi-110019.

CAMPUS NEWS

Seminar on Rotor Spinning held at IIT Delhi

The Department of Textile Technology, IIT Delhi in collaboration with National Textile Corporation Ltd., New Delhi, will organise a two-day seminar on Rotor Spinning on September 11, 1981.

Rotor Spinning made its debut in the international textile scene in the mid 60's. The inroads made into the exclusive domain of ring spinning have since been broadened and consolidated following the universal acceptance of this radical departure from a static technology. The sophistication of today's rotor spinners, embodying advanced engineering and materials concepts, makes it possible to attain hitherto unattainable levels of production. In the national context the potential of rotor spinning and its relevance has been recognised by progressive entrepreneurs and technologists. Indeed the programmes to instal rotor spinners by both the public and private sector enterprises in the immediate future vindicates the importance industry accords this topical technology.

The Department has been engaged in intensive research in all aspects of rotor spinning for over 6 years. Extensive studies conducted by the department have indicated vast possibilities in the rotor spinning of coarser counts from inferior Indian cottons and wastes. The latter finding is of significance when viewed in the context of the latest textile policy of the Government of India and the anticipated increase in the demand of the coarser counts by the priority status handloom sector. Indeed the questions which occur to those curious about the possible role of rotor spinning in the country's future textile industry are manifold. The proposed seminar is expected to provide the much needed forum where possible answers to all such questions may be obtained and discussed. Suggested areas for presenting papers are :

(a) technological considerations for the preparation of high trash content Indian cottons for spinning on rotor spinners;
(b) design criteria and engineering modifications of rotor spinners to suit Indian cottons and wastes;
(c) spinning performance and properties of yarns spun on rotor spinners from Indian cottons;
(d) techno-economic viability of rotor spinners for the mill sector of the Indian textile industry;
(e) productivity projections and techno-economics of rotor spinning in meeting with the demand of the handloom industry for coarse and medium-coarse counts;
(f) properties and performance studies of fabrics woven from rotor-spun yarns: and
(g) chemical processing of fabrics from rotor-spun yarns.

Correspondence programmes at Kurukshetra

The Directorate of Correspondence Courses, Kurukshetra University, established in April 1976, has completed five years of its existence. It started imparting instruction in a planned phased programme, beginning with Pre-University and B.A. Part-I in six Arts subjects, i.e. English, Hindi. Sanskrit, History, Economics and Political Science. B.A. Part-II and B.A. Part-III were introduced in 1977-78 and 1978-79 respectively. The subject of Public Administration was also added to B.A. Part-I, II and III in a phased programme every year respectively beginning from the academic session 1971-80. Within a brief span of five years, the Directorate has a record of steady but impressive growth. Its strength of students has risen to more than 2,000 which is five times greater than what it had in 1976-77. Students are drawn not only from Haryana, Delhi and Punjab but also from many other States including Himachal Pradesh, Jammu and Kashmir, Rajasthan, Uttar Pradesh, Maharashtra, Andhra Pradesh, Gujarat, Assam, Goa, Sikkim etc. There are also a good number of military personnel.

To facilitate the poor and deserving students to continue their studies, the Directorate introduced the grant of half tuition fee concession from the academic session 1977-78. About 500 students have been benefited by the fee concession. The main emphasis of the Directorate is on the quality of lessons and their timely despatch to the students. Response-sheets are examined very minutely as this enables the students to ascertain the pace of their progress. The Personal Contact Programmes of the Directorate are conducted every year in December at different places depending upon maximum concentration of students. A special Personal Contact Programme is also conducted in the month of March, whenever such a need arises. These face-to-face teaching sessions establish a close rapport between the teacher and the taught.

The Directorate brings out its magazine 'Dharmakshetra' which serves as a forum for students to express their views and to be in touch with the activities of the Directorate as well as of the University. Efforts are made to motivate the students to do some writing and thinking on the rich and cultural heritage of India.

Maharashtra varsities to have uniform policy in recruitment

A meeting of the Vice-Chancellors of six non-agricultural universities in Maharashtra, was held in Pune under the chairmanship of the Governor and Chancellor, Air Chief Marshal O.P. Mehra. It has been decided to adopt a uniform procedure in respect of recruitment of the teaching and non-teaching staff from backward communities. The other important policy decision was that all matters of common concern, whether academic, administrative or financial, should be referred to the joint board of Vice-Chancellors. The action to be taken in respect of such matters should have the approval of the board. Among other things, the Vice-Chancellors discussed the qualifications required for persons to be appointed as lecturers in the light of the University Grants Commission and Government directives, the question of granting fellowships to the students admitted to the M. Phil course, emergency powers of the Vice-Chancellors, the concessions to be granted to students who attend N.C.C. camps and the role of universities in promoting national integration. The Chancellor requested the vice-chancellors, to launch a massive tree planting programme on a sustained basis with the help of teachers and students so that our tree wealth is improved and ecological balance is maintained.

Karnataka likely to reduce intake of engineering students

The managements of engineering colleges and students seeking admission to the First Year course in Karnataka this year are in difficulty as the Government is seriously thinking of reducing the intake by 50% in deference to the wishes of the All-India Council of Technical Education (AICTE). The AICTE has expressed concern over the mushroom growth of engineering colleges in Karnataka without regard to adequate laboratory facilities. There are 37 engineering colleges in different parts of the State, most of them privately owned. Seventeen of these started functioning during the past two years. The State Govt. is awaiting the reports from various expert committees appointed to review the position. The State Director of Technical Education in the meantime had called for applications for filling the seats in the Government/University run and the aided colleges. The managements of private colleges were strictly advised against entertaining any application until they were told so.

If the AICTE norm of 40 students per discipline is strictly adhered to the State Government cannot allow the intake for the First Year engineering course to exceed 5000 this year, though it had allowed over 8500 seats last year.

Foundation stone laid for Cochin varsity office complex

Shri Baby John, Kerala Education Minister, laid the foundation stone of the prestigious Administrative Office Block of Cochin University at the main campus of the University situated in Thrikkakara, in the northern outskirts of the City of Cochin. Laying the foundation stone, Shri Baby John said that the University of Cochin started its functioning with distinct objectives and that it was gratifying to note that the University achieved creditable progress during the past few years. The Minister advised that the University should take up extension programme so as to bring the results of the research in the laboratories to the factories and fields. He also pointed out that the quality of research in the universities should be raised so as to bring more benefits to the society. The Minister also advised that job-oriented education in the country should aim at creating more employment by developing appropriate technology to exploit our natural resources. Mr Baby John also laid the foundation stone of the Common Facility Centre and the Gymnasium.

In his welcome speech Prof. (Dr) M.V. Pylee, Vice-Chancellor, said that with the laying of the foundation stone of the administrative office block and the other two buildings, a dream has ultimately come to reality. The administrative office block is constructed at an expected cost of Rs 53 lakhs with state grants and the common facility centre and Gymnasium are constructed with the UGC aid, at an expected cost of Rs 6 lakhs and Rs 3 lakhs respectively. With the completion of the three buildings, the infrastructural facilities of the university will reach a reasonably high standard enabling it to function at a high level of efficiency, facilitating its further expansion and development.

Task force for uplift of Himalayan region

A 15-member task force has been set up by the Planning Commission under the chairmanship of Dr M.S. Swaminathan to study the economic development of the Himalayan region. Developmental activities in the Himalayan region have to ensure that short-term gains are not followed by long-term impairment of the eco-systems that sustain these activities. The Government therefore, feels that there is an urgent need to balance economic development with the imperatives of environmental conservation and formulate realistic and manageable programmes for tackling inter-linked problems involved in the development of the region.

The task force has to decide on a proposal to set up a centre for Himalayan regional studies with the participation of the universities at the region and make suitable recommendations by August this year. According to the terms of reference, the task force has to identify ecological and environmental problems requiring study on a priority basis and draw up guidelines for universities engaged in such studies, recommend national and State-level arrangements necessary in respect of plan formulation, funding, legislative enforcement and administrative machinery needed to overcome the ecological and environmental problems of the region.

IIT Delhi organises part-time management course for working executives

The Centre for Systems & Management Studies, IIT Delhi, from this year will offer a new three-year part-time Master's degree programme for working executives of Public Sector Enterprises, Government Undertaking and personnel working in various Ministries of Centre/State Governments. However, in exceptional cases, the Centre may award a diploma, at the expiry of two years and on successful completion of minimum of 30 credit courses. The new Master's programme in the field of Management has been especially developed to create a professional managerial cadre for the management of public sector organisations. No doubt short-term managerial development courses are being offered for the purposes of training personnel from the public sector, but such courses have obvious limitations in terms of the growth of a professional management culture. The proposed programme will be a systematic and comprehensive introduction to basic management theory and practice in relation to the peculiar organisational and environmental requirements of public sector. This programme is being designed on a wholly sponsored basis with the participating organisations contributing to the total expenses of implementing the programme.

In the effective implementation of this programme it has been decided to have a close collaboration with experts from the participating organisations as also with several experienced and distinguished professional managers from other fields. The advantage of this collaboration will be that the treatment of the course from the very beginning will have a high degree of applied orientation. Furthermore, the cases and problems to be discussed as an integral part of the learning experience, will be drawn from real issues and problems being faced by industries in the complex environment of contemporary India. The classes for this programme will ordinarily be conducted in the evening between 6.00 p.m. and 9.00 p.m. on week days (Monday-Friday). On the basis of 20-25 participants, the cost per annum for each participant will be approximately Rs. 5,000.

Delhi University to set up departmental councils

The proposal has been brought up by a committee appointed by the academic council of Delhi University to have departmental councils consisting of all university appointed teachers in every department through an ordinance. The departmental councils will be on the same lines as the state councils in colleges.

The ordinance would provide for regular meetings of the departmental council. The head of the department shall be its chairman and the procedures for the functioning of the council will be determined by the council itself.

The committee has also recommended that in every college there should be a departmental council consisting of all teachers of that college in a given discipline who should be responsible for the organisation of teaching of the subject in the college. A general body with recommendatory powers which can discuss he problems relating to syllabi, research, seminars and co-operative teaching at the undergraduate, post-graduate and M. Phil. level should be constituted in each department. The committee has expressed the view that this representative general body may consist of all members of the departmental council and every teacher in charge or his nominee from every college where the discipline is taught. The head of the department shall be its chairman. It further recommended that the policy regarding research activities in the department should be laid down with wider consultation than is laid down in present ordinance. It has been felt that ordinance should be modified to provide for a departmental research committee". The committee which will have a tenure of two years, will consist of the head of department as its chairman, four professors, four readers, two lecturers of the university department and two college teachers, all by rotation in order of seniority.

Bhagalpur to organise P.G. in more subjects

Dr. M. Q. Towheed Vice-Chancellor, Bhagalpur University, said in Patna that Postgraduate teaching in five subjects, namely Political Science, English Hindi, Mathematics and Economics will start in the Dumka College from the next academic session. The postgraduate teaching in one subject would cost Rs. 4 lakh. The Vice-Chancellor said he was interested in opening a computer centre in the university. Besides, teaching in Business Management would start as soon as the building was completed. An IAS coaching institute would also be opened.

The Vice-Chancellor said the State Government was considering his proposal to construct a mini stadium on the Bhagalpur University campus in the current financial year at a cost of Rs. 25 to 30 lakh. He stressed the need for opening postgraduate teaching in Geology, Cultural Anthropology and Linguistic. He was equally keen to start teaching in Santhali language. At the moment there is no adequate facility to start this course.

UPSC to have objective tests in 21 subjects

The Union Public Service Commission has introduced objective tests in 21 subjects from this year. Announcing this at a workshop on "Objective Test Construction in Indian History" held in New Delhi. Dr. M. L. Shahare, Chairman of UPSC said that the greatest challenges for Commission was to maintain the quality of these tests in each subject to provide justice to the candidates in various subjects. He said that the objective tests were used as the main selection device for the combined Defence Services and National Defence Academy examinations. It was also part of the main examination for Indian Economic Service, Indian Forest Service and Indian Engineering Services.

Dr. Shahare said that it had been observed that candidates were often advised by their well wishers to take Indian history, political science or sociology. Even a student of physics or mathematics was sometimes prone to choose these subjects, even though it meant preparing for these subjects afresh. The underlying assumption seemed to be that they could score well in the objective tests in these subjects. A good objective test must discriminate between candidates who had a deeper understanding of the subject matter from those who have a superficial knowledge only. It was accessible to all candidates in view of the fact that the items were neither too easy nor too difficult. The scoring was objective. Referring to subject of history, the Chairman said that it was not merely a set of chronicle of events but a study of the analysis of the relationships in the historial perspective. This, viewed from this angle, history was to some extent a science top. The Commission wanted to know through the objective tests was not merely stored information on history but also ability to analyse the historical events and understanding of the inter-relationships among the historical facts and figures.

Bangalore plans PG course in drama

The Department of Dance, Drama and Music of Bangalore University would start postgraduate courses in dance and drama. The department also offers MA degree in music. The proposed degree courses would be different from those of other universities as there would be more room for specialisation. Starting of a one-year diploma course in classical music, with classes in the evenings, was under consideration.

For the academic year 81-82, the department had suggested revised syllabi for all the three degree courses. The department's Board of Performing Arts had approved the revised syllabi. It now only needed the ratification of the University Academic Council

Question bank to assess candidates

The Staff Selection Commission of the Department of Personnel of the Ministry of Home Affairs has decided to prepare question bank to facilitate testing of candidates with objective type question papers for recruitment to the subordinate services in the Central Government.

The commission holds competitive examinations for clerks and stenographers, auditors, junior accountants and UDCs, inspectors for Income-Tax and Central Excise, senior observers and sub-inspectors for Delhi Policeand Hindi teachers under the Hindi teaching scheme. It also conducts examinations for departmental promotions for UDCs, stenographers and typists.

The commission had decided to have a blend of objective and traditional type of question papers for the open examinations conducted by it.

Need of continuing education stressed

A 3-day seminar on 'Continuing Education in Engineering and Technology' was held recently in Calcutta by the Continuing Education Centre of the Jadavpur University in collaboration with the Indian University Association for Continuing Education, New Delhi. Dr M.N. Dastur inaugurated the seminar. Mr J.D. Sharma, Honorary Secretary, IUACE, Prof M.M. Chakravarty, Vice-Chancellor, Jadavpur University, Prof P. Kundu, Dean, Faculty of Engineering and Prof N.N. Roy, Director of the

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COMMONWEALTH FELLOWSHIP, 1982

The Council of St John's College, Cambridge, invites applications for a Commonwealth Fellowship for the year 1982-83. The Fellowship, which is offered annually and is open to men and women, is intended to afford to a scholar, who is a citizen of an overseas Commonwealth country or of the United Kingdom and on leave of absence from an overseas Commonwealth University, the opportunity to undertake study and research as a member of a Collegiate Society and to make contacts with scholars in Great Britain. It is intended for scholars holding academic posts, irrespective of seniority, and not for scholars still working for post-graduate degrees. Candidates who have held University posts, including Visiting Fellowships, in the United Kingdom in the five years immediately preceding the academical year 1982-83 will not be considered.

The Fellowship entitles the holder to a room in College free of rent if required, and to the other rights and privileges of a resident Fellow together with an honorarium at the rate of £1,000 a year. Election is made for one year. While it is expected that the greater part of the Fellow's time will be spent in Cambridge there will be no specific rules of residence.

The College Council proposes to make the election in March 1982. The academical year at Cambridge begins on 1 October and the Commonwealth Fellow will be expected to enter upon the Fellowship as soon after that date as is convenient and not later than April 1983.

Application for the Fellowship should be made to the Master, St John's College, Cambridge CB2 1TP, to reach him not later than 15 January 1982, and should be accompanied by the candidate's full name, the date and place of birth, present appointment, previous career, qualifications, plans and the approximate date at which it is proposed to come into residence, and by the names and addresses of not more than three persons acquainted with the candidate, to whom the Council, if they wish, may refer.

Testimonials should not be sent.

Centre, both of Jadavpur University, spoke on the need of continuing education.

Medical varsity for Tamil Nadu

The Tamil Nadu Government is actively considering the question of setting up a Medical University in the State. Dr H.V. Hande, State Health Minister, made this announcement in the Legislative Council recently.

NIS arranges synthetic track

The Netaji Subhash National Institute of Sports, Patiala, has arranged for synthetic track surface for the 1982 Asian Games. The tracks will be provided both at the main athletic stadium in the Lodi Road complex in New Delhi and at the NS NIS, Patiala. A British firm has been awarded the contract worth Rs 67 lakhs for supplying and installation of the tracks.

New study on landslides

The Geological Survey of India has taken up a project to predict landslides in the Darjeeling and Sikkim Himalayas. The GSI has for the first time undertaken a detailed study of the problem which sometimes results in destruction of property and blockade of roads in the Sikkim-Darjeeling Himalayan region. The new project was included in the GSI's programme at the meeting of the Central Geological Programming Board. Under the project geologists have started demarcating the active and potential landslide areas marking the most prone, moderately prone and least prone zones as a first step towards preparation of a landslide map of the areas. The GSI will prepare the landslide map covering an area of 8000 sq km through the photo interpretation technique. A total of 4000 sq km will be mapped during the current field season.

Habitat university

Mr Darbara Singh, Punjab Chief Minister, while laying the foundation stone of Sanjay Niketan and Sanjay Gram sponsored by Habitat India at Nara village, 7 km from Hoshiarpur said that the two institutions will form the first habitat university in the world. They will impart educational and academic skills connected with human settlement. There will be 12 centres of studies and research devoted to all-round improvement in human settlements, both in rural and urban areas, including a school of village planning and architecture. The Chief Minister said Sanjay Gram would have a village complex attached to Sanjay Niketan spread over 4,800 acres in collaboration with United Habitat, Nairobi. Five hundred families living at present in slums of Hoshiarpur will be inhabited in it. Dr Charanjit Chanana, Union Minister of State for Industries, and President of Habitat India, said work on the habitat university was expected to be completed within two-and-a-half years. He said in the first phase the university will impart job-oriented education.

Plea to keep Ganga clean

Dr B.D. Tripathi, President of the National Environmental Conservation Society said that the stage is not far when the river's water considered holy by the Hindus, will not be fit for human consumption. The Ganga had already been polluted up to 15 metres from its banks at many places.

Experts have warned that if the present state of negligence continues, the whole of the Ganga will be polluted in 50 years.

Dr Tripathi wanted the Government to impose a ban on throwing of bodies and discharge of sewage into the river. He said the Banaras Hindu University had chalked out a Rs 18-lakh plan to study the problem of Ganga pollution and suggested ways how this could be checked. When completed, the findings would be sent to newly formed Environment Department of the Government of India.

News from Agril. Varsities

IARI launches new rice varieties

India's High Yielding Varieties Programme in rice has received considerable support from the movement of this most important cereal crop in time and in space. The rice crop encounters serious problems of water management in the traditional eastern parts of the country and a strategy was, therefore, evolved to extend the cultivation of rice to the north-western states of Punjab, Haryana western Uttar Pradesh, Rajasthan, and Delhi. Similarly, efforts have been made to popularise the summer and *rabi* cultivation of rice in southern India. This new strategy has proved highly rewarding. Thus the north-western states have become during the last ten years, a major producer of rice and the wheat-rice rotation has acquired great popularity in this region and has emerged as the most important single factor in imparting a high degree of stability to the country's food economy. Scientists at the Indian Agricultural Research Institute and other research centres in the country have organised major research programmes to increase the productivity of this rotation and to make it more acceptable to farmers. A major problem arises from the fact that the rice varieties which are widely cultivated by farmers in these states are of a relatively long maturity duration of 140 days with the result that their harvest is delayed and farmers find it difficult to do timely sowings of wheat. IARI scientists have evolved quick maturing varieties of rice which vacate the fields well before the start of the wheat sowing season. Varieties like Pusa-33 which takes only 110 days to mature, have already become popular in some parts of the country. A large number of new varieties are now in the breeders' assembly line and these will offer a wider choice to the farmers and will help to increase both their production and profits.

Two of these varieties—Pusa-150 and Pusa-157 appear to be particutarly promising. These two varieties take about 125 days to mature from sowing to harvest. They fit extremely well in the wheat-rice rotation. With a high yield potential of about 5.5 to 6 tonnes/ha, they combine some of the finest grain quality characteristics outside the traditional *basmati* rices of India. Recognising the vast export potential and also a large domestic demand for fine quality rice, scientists of the Indian Agricultural Research Institute have organised one of the world's largest programmes with the basic objective of combining a high yield potential of the dwarf varieties with grain characteristics typical of the *basmati* varieties. The two varieties Pusa-150 and Pusa-167 are not as good as traditional *basmati* rices; they, however, combine these quality characteristics including some of the *basmati* aroma to a greater extent than any other high yielding varieties of rice. The two varieties are now being tested extensively in the all-India coordinated trials and in the adaptive trials in some of the states. The varieties are simultaneously being tested on farmers' fields in 0.5 to 1 acre plots in more than 300 locations. The results, so far, have indicated a high degree of acceptance by the farmers.

Two other varieties Pusa-169 and Pusa-205 also combine a high yield potential with good grain quality but they are non-scented. An export market exists for both groups of varieties. These varieties are expected to generate greater income for the farmers because of their higher market price and also increased productivity, for the wheat crop in rotation with them is expected to give significantly higher yields. With rice production in the country registering a sustained increase, availability of these fine quality varieties could help to boost India's export of rice.

Tamil Nadu develops low cost biogas burner

A low cost burner has been developed at Tamil Nadu Agricultural University for an effective utilisation of biogas. This burner can be placed inside the country oven without making any modification on the country oven. It can be manufactured easily by local village artisans. It is similar to the conventional burner which is in wide use. The gas consumption is more or less same as for the conventional burner. The cost of the single burner is Rs. 25/- and that of the double burner is Rs. 50/- whereas, the cost of the conventional burner varies from Rs. 200/- to Rs. 400/-.

Ranchi sets up Institute on veterinary parasitology

A summer institute on veterinary parasitology was organised at the Ranchi Veterinary College under the auspices of the Birsa Agriculture University from June 22. Dr. B.N. Sahai, Head of the Department of Parasitology of the university is the course Director. The institue has been sponsored by the Indian Council of Agricultural Research

UAS organises seminar on sericulture

A seminar on the problems and prospects of Sericulture in Karnataka was organised recently at the Hebbal Campus of the University of Agricultural Sciences, Bangalore, for the benefit of Sericulturists of the State.

Inaugurating the seminar, Smt. Renuka Rajendran, Hon'ble Minister for Small Scale Industries and Sericulture, said that there was a need for improving sericulture by producing International grade silk which was a prerequisite to compete in the world silk market. She called upon the farmers to discuss their grievances with the University Scientists and Departmental Officers during the course of the Day.

Mr. N. Viswanathan, Director of Sericulture in Karnataka explained the advantages of sericulture in the State which was providing not only employment but also adequate returns for their efforts. He also narrated the benefits available from the Government for the Sericulturists of the state.

Dr. R. Dwarakinath, Vice-Chancellor of the UAS who presided over the inaugural session stressed the need for diverting some of the less economic crops to cultivation of mulberry. He also felt the necessity for developing sound technical knowledge and make it available to farmers, doors. The need for a multi-disciplinary approach for proper planning of research to prevent overlapping in research was also pointed out by him.

Research grants for rare plant

The International Science Foundation, Sweden, has agreed to provide a grant of Rs. 40,000 for research to improve Ipicac cultivation, a rare plant species in the world, in Darjeeling district. The Director of the Foundation for Cultivation of Cinchona and other Medical Plants, West Bengal, Dr. Salil Chatterjee, said that Foundation had agreed to double next years grant. Research work on Ipiac (the emetine producing plant) was the first of its kind in the world as the Ipicac root popularly known as "green gold" grows in Darjeeling hills. Emetine, the product of the Ipicac roots, is an invaluable ingredient for the pharmaceutical industry. A Rs 2.7 crore emetine project., including a factory with an initial capacity of 240 kg a year, was expected to go into production early next year.

Dr Chatterjee said cultivation of the root was stopped in 1973 because of a lack of demand. Cultivation was resumed in 1976. The Directorate earlier used to sell Ipicac roots to pharmaceutical companies cheaply. But now we want to use it profitably. The average world demand for emetine was 10,000 kg. including 250 kg. for India. The price of emetine in the world market was Rs 22,000 a kg.

PAU considering headship rotation

Mr. I. C. Puri, acting Vice-Chancellor of Punjab Agricultural University, said in Ludhiana that the rotation of heads of departments and Deans of various colleges should be made only when considered necessary. If the performance of a person at a post was good he should be allowed to continue for four or five years. He said that a committee of experts had been appointed to study the rotation scheme. It would submit its report within three months.

News from UGC

UGC reservations for weaker sections of society

The UGC would provide reservation of 10 per cent of various research fellowships, associateships and scholarships for members of the Scheduled Castes and Scheduled Tribes. This is the first step taken by the Commission to encourage them for higher studies. There are over 3000 research fellowships, associateships and scholarships at university level. In addition, the Commission also gives several direct awards including 50 junior research fellowships, 20 senior research fellowships and 20 research associateships exclusively for Scheduled Caste and Scheduled Tribe students. The minimum value of these awards is Rs. 600 per month and maximum Rs. 1500.

UGC grants autonomy to TN colleges

The scheme of autonomous colleges will be enlarged in its coverage in Madras University with the recent decision of the University Grants Commission to grant autonomous status to four more colleges. The new colleges to be covered are Women's Christian College (Madras), Government College of Technology (Coimbatore), Sri Ramakrishna Mission Vidyalaya Arts and Science College (Coimbatore) and Sri Ramakrishna Mission Vidyalaya Teachers College (Coimbatore). In addition, Vivekananda College at Madras, which is already enjoying autonomous status in respect of the postgraduate departments in Chemistry and Economics, will get the status for all undergraduate courses and the postgraduate course in mathematics. The Women's Christian College will get autonomy for all undergraduate courses and the PG course in Home Science. The Government College of Technology at Coimbatore will enjoy autonomy for the PG courses in structural engineering and mechanical engineering.

To ensure the effectiveness of the scheme the UGC expects the State Government not to transfer to other Government colleges the qualified teachers now available in that college to teach and conduct research. In the Sri Ramakrishna Mission Vidyalaya Arts and Science College, Coimbatore, all undergraduate courses and the PG course in Cooperation and Social Work get autonomy. The Ramakrishna Mission Teachers' College will enjoy autonomy in B.Ed. and M.Ed. courses.

The UGC decision to extend the scheme of autonomous colleges was taken after an experts committee had visited the institutions and satisfied itself about the facilities available. The working of the scheme in these colleges will be reviewed after three years. With the present decision, 12 colleges affiliated to Madras University will be autonomous Colleges which will give them freedom to experiment with innovative ideas in curriculum, scheme of studies, teaching and evaluation methods. Those already covered are Madras Christian College, PSG College of Technology, PSG College of Arts and Science, Loyola College, St. Josephs College, Avinasilingham College of Home Science and Regional Engineering College, Tiruchi.

Science & Technology

Use of science to uplift SCs planned

The Planning Commission has drawn up a comprehensive programme for a rapid application of science and technology for all-round advancement of the Scheduled Caste people. The programme lays emphasis on the development of the farm front as majority of the Scheduled caste people are agricultural labourers. The programme was finalised at a meeting of representatives of health, science and technology institutions, State Government and Scheduled Castes Development Corporations held recently in the Planning Commission. It emphasises development of human resources on a priority basis. It visualises close link among the State Scheduled Castes Development Corporations. Science and technology institutions and developmental department in agriculture, animal husbandry, fisheries, forestry, rural development and cottage and village industries.

Environment laws to be reviewed

The newly created Department of Environment proposes to set up a legal cell to review and plug loopholes in the laws relating to environment. A legal expert will head the cell, which will also codify the environmental laws. There are at present more than 350 laws having direct or indirect bearing on environmental protection. Many of the existing laws are primarlly meant to promote resources utilisation for specific economic benefits without a careful analysis of the potential short and long term deleterious effects on environment. Also many of the existing laws relating to management of environmental resources do not clearly state the social objectives they aim to achieve. The administiative machinery set up to implement the legislative measures have therefore, on their own interpreted their duties from time to time which have often proved to be not in conformity with the intent and purpose for which the laws are made.

Another lacunae found is that some of the laws relating to land use and management of environmental resources at times appear to be accomplishing mutually defeating social objectives. Also implementing and monitoring machinery of many of these legislative measures is deficient in the scientific and technical expertise as well as other infrastructural resources required to assess and prevent the possibility of adverse environmental impacts.

The high level committee 'for recommending legislative and administrative machinery for environmental protection, which has given birth to the Department of Environment, has called for comprehensive review of two prominent Central Acts. One is the Insecticides Act, 1968, which, it says, has not encouraged strongly enough disuse of organochlorine pesticides. These pesticides are in disfavour all over the world for their proven detrimental effects on various natural living resources of the environment.

Drugs And Doctors

(*Contd. from page 356*)

examination. Moreover, 'there is nothing wrong with you' fails to satisfy the patient, who demands a long list of medicines in reciprocation of the consultation fee paid by him. This forces the doctor to 'write' something—it is not uncommon to see the same prescription having 2 or 3 brands of tonics or cough sedatives. Thus, examination—investigation—prescription becomes a conditioned reflex in Pavlovian terms. These constitute, what may be called acts of commission. The threat of ommission is reflected as lack of knowledge about drugs or people —we are, otherwise too, ill famed to treat the disease and not the person.

Complexity and tragmentation have been ever increasing in medicine—making medicine like a slotted vending machine, giving an advice in response to a coin, without any regard for the integrity of the patient. Medicine has become so accustomed to searching for the technical answers to its dilemmas that quest for answers on behavioural side continues to be deferred. One is reminded of the old story of a passerby, who noticed a man searching something under the streetlight and asked 'Have you lost something ?'', 'Yes, my keys over there', he said pointing to the other side of the street. 'But why are you looking here, if you lost them over there'. 'Well this is where the light is'.

And lastly, a word about misuse of drugs by the public—drugs can be purchased like sweets. We remember the incident of our Professor of Pharmacology, who on his visit to America, could not get even aspirin for his use without a prescription. You often come across self made medical men, who acquire their knowledge from relatives, friends, colleagues (who are all, of course, medical experts), pamphlets, radio advertisements and footpath booksellers, knowledge is never a bad thing in itself but fruits of enlightment are quite another thing. There have been instances, where pain of peptic ulcer has been tried to be relieved by aspirin, where isoprenaline has been given for cardiac asthma and so on—on the advice of a well wisher.

One can go on endlessly in this manner. The need of the hour is that people must have a responsible attitude towards drugs, particularly the 'miracle' drugs. This applies not only to them, who go in for self treatment but also doctors who are fond of prescribing newer drugs—which are often backed by an army of false and often baseless claims perpetuated by drug companies for their own benefit. □

Lab to Land Programme

(*Continued from page 353)*

but also provided first hand information of farmers' problems to find out solution. Apart from many constraints, the great handicap on the part of university experts was reported the non-availability of timely transportation facilities which needs special attention of the university authorities for making this programme a great success.

It will be worth mentioning that Indian Council of Agricultural Research launched extension programme of Lab to Land programme on its Golden Jubilee Year, 1979 in Farm Varsities and Institution on experiment basis for two years which was further extended by another one year. Keeping in view the basal need to transfer the 'know-how' the Council besides research and teaching, should assume extension responsibility to bridge the information gap between the research-based technologies and their application on the farms. For this purpose, infrastructure in respect of field staff, incentive schemes for extension work, adequate funds and transport facilities should be provided in farm varsities/institutions.

□

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Anthropology

1. Mitra, Gangaram. Education among the backward classes in Howrah District, West Bengal. University of Calcutta.

2. Sinha, Dikshit. The Hill Kharia of Purulia: A study of the impact of poverty on a hunting and gathering tribe. University of Calcutta.

Psychology

1. Bharati Kumari, K. A study of the development of the idea of sex (gender) in children. Sri Venkateswara University.

2. Surya Narayanan, K. A comparative study of the personality of absentees and regulars in an industrial setting. University of Kerala.

Sociology

1. Choudhury, Sujit. A study of the folk cults of the Bangalee Hindus of Cachar District. Gauhati University.

Political Science

1. Mahanta, Bijan. A century of administrative development of Arunachal Pradesh from 1875 to 1975. Gauhati University.

2. Pai, Sudha. Agrarian relations in Uttar Pradesh: A study of the North-Eastern areas. Jawaharlal Nehru University.

3. Saleem Hussain. Zila prashasan mein Collector kee bhumika: Raisen zile ke vishesh sandarbh mein. Bhopal University.

4. Sharma, Shail. Organisation and working of the Ministry of Finance. Bhopal University.

5. Thappa, Indra Jung. Agrarian under-development: Patterns of socio-economic change in a flood hit area—a case study. Jawaharlal Nehru University.

Economics

1. Kasture, Asha Ramkrishna. Irrigation in Vidarbha since 1960. Nagpur University.

2. Kuttappan, M. Coconut production in Kerala: An economic analysis. University of Kerala.

3. Sain, Prasanta Kumar. Creation of social overheads and the inflationary barrier. Rabindra Bharati.

Law

1. Jagdish Kumar. Social situations on contractual fraud and misrepresentation: A study relating to judicial trends in India. University of Rajasthan.

Education

1. Dev, Satyaki Kumar. A critical study of the methods of teaching in the secondary schools of Nagaland. Gauhati University.

2. Massey, Meera. A study of the effect of training in the formulation and usage of behavioural objectives on the classroom verbal behaviour of inservice teachers. Himachal Pradesh University.

3. Pal, Gobindapada. An analysis of the fundamental abilities involved in the learning of Physical Science. University of Calcutta.

4. Suthar, Keshavlal Shankerlal. A study of performance on programmed learning material in relation to some psychological characteristics. Sardar Patel University.

Commerce

1. Bhattacharyya, Haranath. Issues and problems of international liquidity with particular reference to India's external economy. University of Burdwan.

2. Gupta, Shiv Shanker. Bharat mein sampada shulk kanoon: Ek vivechanatmak adhyayan. University of Saugar.

3. Haldar, Umaprasad. Industrial regulation in India during the plan period. University of Calcutta.

4. Patel, Mangaldas Kalidas. Gujaratni julla madhyastha sahkari benkonu karmachari sanchalan (Gujarati). Sardar Patel University.

HUMANITIES

Philosophy

1. Bhattacharjee, Nani Gopal. The vedantic idealism of Dr S. Radhakrishnan. Andhra University.

Linguistics

1. Java, Satya Nand. Influence of Persian on Punjabi language and literature. Jawaharlal Nehru University.

2. Rajathi, J. Descriptive study of Cochin Konkani. University of Calcutta.

3. Tunga, Sudhansukumar. Bengali and other dialects of the district of Cachar: A comparative and descriptive study. *D. Litt.* University of Calcutta.

Literature

English

1. Saraswathi, Rupakula. Illusion and reality in the plays of Edward Albee. Andhra University.

2. Sastry, Neelakanth. The bellow hero: A study in identity. Bhopal University.

3. Sharma, N.P. Dramatic genius of J.M. Barrie: A study of his mind and art. University of Rajasthan.

4. Varma, R.S. Linguistic restructuring of English loan words in Hindi. University of Rajasthan.

5. Venkataratnam, V. W.B. Yeats and the poetic drama. Sri Venkateswara University.

Sanskrit

1. Bagchi, Asoke. Sanskrit and modern medical vocabulary: A comparative study. *D. Litt.* University of Burdwan.

2. Mukhopadhyay, Ramsankar. Aitareya sakha-o-sankhayan sakhar karmakander tulanamulak samiksha. University of Burdwan.

Hindi

1. Bhat, Leeladhar Vamanrao. Women in Hindi novels 1920-40. Karnatak University.

2. Jadhav, Ramesh Kumar. Mohan Rakesh: Life, personality and works. Osmania University.

3. Jaiswal, Amarprasad Ganeshprasad. Hindi ke laghu upanyas. Marathwada University.

4. Joseph, K.P. Comparative study of nature in Hindi and Malayalam modern poetry with special reference to Asan and Jaisankar Prasad. University of Kerala.

5. Ketkar, Kamala. Namdev and Kabeer—darshanik vichardhara. Osmania University.

6. Kotia, M.P. Hindi Jain sahitya mein Krishan ka swaroop. University of Rajasthan.

7. Mishra, Radhakanta. Linguistic study of Eastern Apabhramsa with special reference to the language of the Siddhas. Utkal University.

8. Misra, C.L. Hindi bal katha sahitya mein shabd yojana. Bhopal University.

9. Mudiraj, Kranti. Seth Govind Das ke sahitya par Gandhivad ka prabhav. Osmania University.

10. Murai, Lakhanlal Kalicharan. Swatantryottar kal ke Hindi natakon ka pravritimulak adhyayan. Nagpur University.

11. Narayana Reddy, N. Swatantryottar Hindi upanyason mein parivarik sambandh. Sri Venkateswara University.

12. Pandey, Vijai Laxmi. Pragatiwad aur swatantryottar Hindi upanyas. University of Gorakhpur.

13. Raghav Prakash. Pashchatya evam Bharatiya sahitya shastra mein shaili vaigyanik avdharnaen. University of Rajasthan.

14. Rajalekshmy, A. Social dramas of post-independence period. University of Cochin.

15. Sangwan, Gunpal Singh. Haryana ke lokgeeton ka sanskritik adhyayan. Maharshi Dayanand University.

16. Sinha, Kanta. Shrimati Rajni Panikkar ke vyaktitv aur krittitv ka anusheelan. Nagpur University.

17. Srivastava, Champa. Hindi ke atamkathatmak sahitya ka anusheelan. University of Saugar.

18. Verma, Satya Bhushan. Japani Haiku aur adhunik Hindi kavita. Jawaharlal Nehru University.

Bengali

1. Chattopadhyay, Ramananda. Bangla upanyase musalman charitra-o-samaj, 1865-1926. University of Burdwan.

2. Majumdar, Asiskumar. Bankimchandrer rachaney engreji sahityer prabhab. University of Calcutta.

3. Mandal, Narayan Chandra. Bangala natake nayika charitra. University of Calcutta.

4. Nandi, Somendra Chandra. Bangla nataker aitihasikata bichar. Rabindra Bharati.

5. Ray, Syamalkrishna. Bangla upanyase swadeschinta 1882-1926. University of Calcutta.

6. Sarkar, Biman Kumar. Bankimchandrer sahitya tatwa-o-Samalochanar dhara. University of Calcutta.

7. Sukul, Dipali. Bangla natake sanglap, unabinsa satabdi. University of Calcutta.

Assamese

1. Sharma, Basanta Kumar. The evolution of Assamese comedy. Gauhati University.

Oriya

1. Mohanty, Anjali. Sarala sahityare bhaugolika barnana. Utkal University.

2. Mohanty, Kunjabihari. Atibadi sampradaya. Jagannatha Dasa. Utkal University.

Marathi

1. Pantawane, Gangadhar Vithobaji. A critical study of Marathi journalistic writings of Dr Babasaheb Ambedkar. Marathwada University.

Gujarati

1. Parmar, Jorusingh Nanjibhai. Shri Somasundar rachit Updeshmala—Balavbodh: Sampan ane adhyayan. Sardar Patel University.

Persian

1. Mohammad Mansoor Alam. Maharaja Kalyan Singh: A scholar of repute in Persian. University of Calcutta.

2. Qureshi, Mohammad Yusuf. Thamarat-Ut-Hayat by Mir Ali Askari Aqil Khan Razi. Nagpur University.

Arabic

1. Khan, Mohammad Hassan. Contribution of India to Arabic literature from 1857 to 1947. Bhopal University.

2. Mohammad Rahatullah. A study of dramas written by Shawqui and Tagore. University of Calcutta.

Tamil

1. Subramonia Pillai, C. Descriptive grammar of Thayumaanavar songs. University of Kerala.

Malayalam

1. Jaya Kumar, Vijayalayam. Autobiographic literature in Malayalam: A study. University of Kerala.

Geography

1. Jadhav, Mohan Govind. Sugarcane cultivation in Upper Krishna Basin: A geographical analysis. Shivaji University.

History

1. Das, Arvind Narayan. Agrarian unrest and socio-economic change in Bihar, 1930-1970. University of Calcutta.

2. Dube, Varsha. Hari Singh Gaur puratatva Sangrahalaya ki prachin mudraon ka vivechanatmak adhyayan. University of Saugar.

3. James, Erinjery Joseph. The Thomas Christian architecture of Malabar: Ancient and medieval periods. University of Calcutta.

4. Mitra, Pranab Kumar. Port town in medieval India, 1605 A.D.—1707 A.D.: A case of Surat. University of Calcutta.

5. Mitra, Tarun Kumar. Contribution of Rajasekara to the development of subject classification. University of Calcutta.

6. Sen, Nilima. The regions of Kapisa and Gandhara A study in cultural history, Circa. A.D. 629-1021. University of Calcutta.

7. Sharma, Subash Chander. Punjab under Michael 'O' Dwyer, 1913-1919. University of Jammu.

8. Sreeramachandra Murti, V. Temples in Guntur District: A socio-religious and economic study, A.D. 1000 A.D. 1323. Nagarjuna University.

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CURRENT DOCUMENTATION IN EDUCATION

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Wyatt, J.F. "Ortega Y Gasset's Mission of the University: An appropriate document for an age of economy?". *Studies in Higher Education* 6(1); 1981: 59-69.

EDUCATIONAL PSYCHOLOGY

Anderson, Kristine L. "Educational goals of male and female adolescents: The effects of parental characteristics and attitudes". *Youth and Society* 12(2); Dec 80: 173-88.

Bhatnagar, Asha. "A study of some factors affecting student involvement in studies". *Indian Educational Review* 15(3); July 80: 70-5.

Jones, Ruth S. "Democratic values and preadult virtues: Tolerance, knowledge and participation". *Youth and Society* 12(2); Dec 80: 189-220.

Kapur, J.N. "Some aspects of scientific assessment of learning, achievement and creativity". *Indian Education* 10(4); July 80: 6-10.

Lidhoo, Moti Lal and Zargar, Abdul Hamid. "Degree of neuroticism: Its relation to intelligence and creativity". *Indian Educational Review* 15(4); Oct 80: 86-90.

Vaidya, N. "The Piagetian journey from Mollusks through Moppets to Methaphor, 1896-1980". *Indian Educational Review* 15(4); Oct 80: 1-14.

Winteler, A. "The academic department as environment for teaching and learning". *Higher Education* 10(1); Jan 81: 25-35.

EDUCATIONAL SOCIOLOGY

Altbach, Philip G. "The crisis of the professoriate". *Journal of Higher Education* (Delhi) 5(3); Spring 80: 317-30.

Shah, A.B. "What is wrong with reservations?" (Editorial) *New Question* (26); Mar-Apr 81: 11-12.

Shimbori, Michiya. "The Japanese academic profession". *Higher Education* 10(1); Jan 81: 75-87.

EDUCATIONAL PLANNING

Bleau, Barbara Lee. "Planning models in higher education: Historical review and survey of currently available models". *Higher Education* 10(2); Mar 81: 153-68.

EDUCATIONAL ADMINISTRATION

Elton, Lewis. "Can universities change?" *Studies in Higher Education* 6(1); 1981: 23-33.

Furniss, W. Todd. "New opportunities for faculty members". *Educational Record* 62(1); Winter 81: 8-15.

Gired de L'ain, Bertrand. "Certifying effect and consumer effect. Some remarks on strategies employed by higher education institutions". *Higher Education* 10(1); Jan 81: 55-73.

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Padmanabhan, C.B. "Reforms in accounting in universities and colleges in India". *University News* 19(9); 1 May 81: 255-6.

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CURRICULUM

Barnett, S.A. and Brown, Valerie A. "Pull and push in educational innovation: Study of an inter-faculty programme" *Studies in Higher Education* 6(1); 1981: 13-22.

Craig, B. Lee. "Variations and themes in international education". *Educational Record* 62(1); Winter 81: 41-6.

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"GUIDELINES FOR restructuring of courses". *Bulletin of Higher Education* 5(3); Feb 81: 17-21.

Kaul, J.N. "Educational planning and administration as a discipline in the universities". *Indian Education* 10(12); Mar 81: 3-4.

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Geis, George L, etc. "Preparing for teaching in colleges and universities. In-service support in Canada and United States". *Studies in Higher Education* 6(1); 1981: 47-57.

Peter, K.C. "I lecture.....". *New Frontiers in Education* 11(1); Jan-Mar 81: 34-43.

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Greaney, Vincent. "Developing national attainment measures: A study of Irish experience". *International Review of Education* 26(1); 1980: 3-16.

Greenwood, Gordon E. and Ramagli, Howard J. "Alternatives to student ratings of college teaching". *Journal of Higher Education* (Ohio) 51(6); Nov-Dec 80: 673-84.

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Pereira, L.S. "Some trends in the development of examinations in Sri Lanka". *New Frontiers in Education* 10(4); Oct-Dec 80: 6-14.

Rais Ahmad. "Reorientation in teaching, learning and evaluation". *Journal of Higher Education* (Delhi) 5(3); Spring 80: 331-3.

ECONOMICS OF EDUCATION

Gogate, S.B. "Unit cost of higher education for arts, science and commerce colleges in Maharashtra 1973-74 to 1977-78". *Bulletin of the Indian Institute of Education* (Pune) 1980; 81-88.

Haddad, Wadi, D. "The World Bank's education sector policy paper: A summary". *Comparative Education* 17(2); June 81: 127-39.

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Mehra, Manmohan. "Correspondence education". *University News* 19(9); 1 May 81: 257.

Moss, G.D. and Brew, A. "The contribution of the Open University to innovation in higher education". *Higher Education* 10(2); Mar 81: 141-51.

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Clarke, Alex M and Birt, L. Michael. "Australian universities in the post-Williams period: The impact of public policy on the small universities". *Higher Education* 10(2); Mar 81: 181-97.

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Mitter, Wolfgang. "Education in the Federal Republic of Germany: The next decade". *Comparative Education* 16(3); Oct 80: 257-65.

Raj Krishna. "Piece-rate education". *Seminar* (261); May 81: 34-6.

"REGIONAL IMBALANCES in the development of higher education". *Bulletin of Higher Education* 5(3); Feb 81: 2-8.

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CLASSIFIED ADVERTISEMENTS

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Dated 10th June, 1981

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A first or high Second class recognised Post-graduate or Doctorate degree in the subject concerned, and ten years teaching, research or professional experience or a combined teaching, research and professional experience of ten year's in the field, as reputed artist, with a record of outstanding achievement in the field.

OR

Outstanding competence assessed from a review of published research work or a Traditional Artist with an established reputation and professional achievement in the subject concerned and a combined teaching and professional experience of fifteen years.

FOR READERSHIP

A first or high second class recognised Post-Graduate degree in the subject concerned and five years' teaching, research or professional experience or a combined teaching, research and professional experience of five years' in the field, as reputed artist with a record of outstanding achievement in the field

OR

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OR

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OR

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D.K. Ghosh
REGISTRAR

MARATHWADA AGRICULTURAL UNIVERSITY

PARBHANI

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No. AXM-82

May 29, 1981.

Applications are invited from the eligible candidates for admission to the following degree courses in the academic year 1981-82.

Sl. No.	Courses	Duration in semester	Eligibility	Whom to apply
1	2	3	4	5
1.	B.Sc. (Agri)	6	XIIth standard pass with Physics, Chemistry, Biology or B.Sc. I Year/PPC/Intermediate with Biology group (The candidates who have not passed XIIth with Mathematics shall have to make-up courses in Mathematics).	Associate Dean and Principal College of Agriculture, Parbhani-431 402.
2.	B.V.Sc. & A.H.	9	XIIth Std. pass with Physics, Chemistry, Biology or B.Sc. I year/PPC/Intermediate with Biology group.	Associate Dean and Principal, College of Veterinary and Animal Sciences Parbhani-431 402.
3.	B. Tech. (Food-Sciences)	8	XIIth Std. pass with Physics, Chemistry, Biology/ Maths or B.Sc.I year/PPC/Intermediate with Science subjects or IInd year pass of 4 year's B.Sc. (Agri.) degree course.	Associate Dean and Principal, College of Agricultural Technology, Parbhani-431 402.
4.	B.Sc. (Home Science)	6	XIIth Std. pass with Physics, Chemistry, Biology OR B.Sc. I year/PPC/Intermediate with Biology group or XIIth Std. pass with Arts or Commerce (Candidates who are from Arts or Commerce group shall have to complete deficit courses)	Associate Dean and Principal College of Home Science Parbhani-431 402.
5.	M.Sc. (Agri) in (1) Agronomy (2) Animal Husbandry and Dairying *(3) Agril. Botany (4) Agril Chemistry and Soil Science (5) Agril Economics (6) Entomology (7) Agril Extension (8) Horticulture (9) Plant Pathology.	4	B.Sc. (Agri) of this University or degree recognised as equivalent to it by this university. B.V.Sc. and A.H., B.Sc. (Home Science) B.Tech. (Food Sciences) degree holders of this University or degree recognised as equivalent thereto by this University shall also be eligible to apply for admission to M.Sc. (Agri.) in Agricultural Extension only.	Associate Dean and Principal College of Agriculture Parbhani-431 402.
6.	M.V.Sc. in (1) Bacteriology (2) Parasitology (3) Pathology (4) Pharmacology (5) Medicine (6) Animal Management (7) Animal Genetics and Breeding (8) Animal Nutrition (9) Physiology and Bio-Chemistry (10) Dairy Science (11) Surgery (12) Gynaecology and Obstetrics	4	B.V.Sc. & A.H. of this University or a degree recognised as equivalent to it by this University	Associate Dean and Principal, College of Veterinary and Animal Sciences, Parbhani-431 402.
7.	M.Tech. (Food-Sciences)	4	B.Tech. (Food Sciences) of this University or a degree recognised as equivalent thereto by this University.	Associate Dean and Principal College of Agricultural Technology, Parbhani-431 402.
8.	M.Sc. (Home Science) in (1) Home Management (2) Foods and Nutrition	4	B.Sc. (Home Science) degree holders of this University or a degree recognised as equivalent thereto by this University.	Associate Dean and Principal College of Home Science, Parbhani-431 402.

(*) There are three disciplines in Agricultural Botany i.e. (1) Genetics and Plant Breeding (2) Plant Physiology and (3) Seed Technology. Preference may be given for one of these disciplines under Agricultural Botany.

1	2	3	4	5
9.	Ph.D. in (1) Agronomy (Crop Husbandry) (2) Animal Husbandry and Dairying (Livestock-Production and Management) (3) Agricultural Botany (Plant Breeding and Genetics) (4) Agril. Chemistry and Soil Science (Soil Science) (5) Agril. Economics (6) Entomology (7) Agril. Extension (8) Horticulture (Pomology) (9) Plant Pathology	4	Master's degree of this University in the subject or a degree/diploma recognised as equivalent to it by this University.	Associate Dean and Principal College of Agriculture, Parbhani-431 402.

English shall be the medium of instruction.

Application forms with prospectus (Collegiate Programme) containing all other details can be had from the Associate Dean and Principal of the college concerned on payment of Rs. 2/- in cash or by M.O. or in the form of crossed Indian Postal Orders Payable to him.

Last date for receipt of application is **July 6, 1981** for undergraduate degree courses and **July 15, 1981** for post-graduate courses. The application form must accompany a crossed Indian Postal order of Rs. 3/- towards the registration fee payable to the Associate Dean and Principal of the college concerned.

The Academic session shall commence from **July 20, 1981** or as will be declared by the University.

The selection for admission shall be strictly on merit basis as per rules. Admissions to reserved categories shall be as per Government rules. Separate application for admission to each degree-course should be sent.

REGISTRAR

JAMIA MILLIA ISLAMIA

JAMIA NAGAR,
NEW DELHI-110 025

Advt. No. 1/81-82
Dated 11.6. 1981

Applications on the prescribed form which can be had from the Registrar's Office on any day (except Holidays) between 10.00 a.m. and 12.00 Noon or by sending a self addressed and stamped (35 paise) envelope of 10 x 23 cms. are invited along with the corssed Indian Postal Order or Bank Draft of Rs 3/- (Re 1/- for S.No. 8) for the following posts so as to reach the Registrar by 1.00 p.m. on July 15, 1981.

Ability to teach in Urdu and Hindi is a desirable qualification for teaching posts and knowledge of Urdu and Hindi is essential for non-teaching posts.

D.A., C.C.A., H.R.A., P.F., Gratuity, Pension and other benefits will be given according to Jamia rules.

Relaxation in any of the qualifications may be made on the recommendation of the Selection Committee in exceptional cases.

1. **One Professor in History**
(Rs 1500-2500)—Permanent.

An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

2. **One Reader in Geography**
(Rs. 1200-1900)—leave vacancy.

Good academic record with a first or high second class Master's Degree of an Indian University or an equivalent foreign qualification. A Doctorate Degree or equivalent published work in the subject concerned, and independent published work of a high standard in addition to the published work referred to above and at least 5 years' experience of teaching Hons./Post-graduate classes or 10 years' experience of teaching undergraduate classes.

3. **One Reader in Education**
(Rs. 1200-1900)—Permanent.

Good academic record with a first or high second class Master's Degree of an Indian University or an equivalent foreign qualification. A Doctorate degree or equivalent published work in the subject concerned, and independent published work of a high standard in addition to the published work referred to above and at least 5 years' experience of teaching M.Ed. classes or 10 years' experience of teaching B.Ed. classes.

Specialisation in Educational Research, Statistical methods and Educational Psychology will be a desirable qualification.

4. **Ten Lecturers :** (Rs. 700-1600)

One each in Mathematics (permanent), Geography (temporary likely to be made permanent), two in History, two in Hindi, two in Physics, and one in Organic Chemistry and one in Arabic (leave vacancies).

(a) A Doctors' degree or research work of an equally high standard ; and
(b) Consistently good academic record with 1st or high 2nd class Master's Degree in a relevant subject or an equivalent degree of a foreign university.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed above.

For the post of Lecturer in Geography specialisation in Mathematical Geography would be a desirable qualification.

For the two posts of Lecturer in History candidate should have specialisation in Medieval History with ability to teach History of Russia and Europe.

5. **Two Lecturers in Education**
(Rs. 700-1600)
one each in Civics and Physics
(leave vacancies)

(a) A Doctor's Degree in Education or research work of an equally high standard; and,

(b) Consistently good academic record with 1st or high 2nd class Master's Degree in the relevant subject or an equivalent degree of a foreign university.

OR

(a) A Doctors' Degree in the relevant subject or research work of an equally high standard; and

(b) Consistently good academic record with an M.Phil degree in Education or an equivalent degree of a foreign University.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed above.

6. **One Professional Junior**
(Rs 700-1300)—permanent.
(1) First or Second class M.A. (Arabic/Persian)
(2) B.Lib.Sc. or equivalent one year diploma in Library Sc.
OR
(1) First or Second class M.A. (Arabic/Persian).
(2) Sanadul Firagh Dars-i-Nizamia.
(3) 15 years' experience in a responsible position of organising and editing manuscripts and private papers.

7. **Two Compounders (Rs. 330-560)**; one permanent and one leave vacancy.
(a) Matriculation or its equivalent.
(b) Must have passed the Pharmacists (Compounder's) Course from a recognised Institution and must be a registered pharmacist as required under the Pharmacy Act, 1948.
(c) Two years experience in a hospital.
(d) Adequate knowledge of Urdu and Hindi.

8. **One Library Attendant**
(Rs 210-270)
leave vacancy.

Essential
Matriculation.

Desirable
Experience of having worked in some Library.

S.H. Naqvi
OSD/OFFG. REGISTRAR

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

Baroda-390002

Notification No. 5

Applications are invited for the following posts in prescribed forms which will be available upto **11th July 1981** alongwith the details of qualifications and Specialization from the undersigned on pre-payment of Rs 2.00 (Re. 00.50 Np for members of Scheduled Castes/Scheduled Tribes) by Crossed Indian Postal Order payable to Registrar, M.S. University of Baroda alongwith a self-addressed envelope of 30 cms. x 12 cms. for each post. The Form will be available in person during working days between 11.30 a.m. to 2.00 p.m.

The applicant at the time of requesting for the prescribed forms should mention very specifically the Post Number also for which the forms are required. The Scheduled Castes/Scheduled Tribes candidate will attach a certificate to this effect.

FACULTY OF ARTS

PROFESSOR IN
(1) Agricultural Economics
(2) Philosophy
(3) Gujarati
READER IN
(4) History (2 Posts)
LECTURER IN
(5) Economics
(6) English
(7) French
(8) Sindhi
(9) History
(10) Linguistics
(11) Persian
(12) Lecturer (Curator) in the Department of Archaeology

(Continued on next page)

Indian school of Mines

DHANBAD-826 004

Advt. No. 420004/81-Estt. **Dated: 18th June, 1981**

The Indian School of Mines (deemed to be a University under the UGC Act) invites Applications for the following posts :

1. **ONE PROJECT OFFICER**
—for the Deptt. of Petroleum Engineering

Qualifications

B. Tech degree in Chemical Engg/Instrument Technology or M.Sc. in Chemistry (with specialisation in Physical Chemistry) or equivalent with a first class, with minimum of one year experience in design, fabrication or installation of equipment or Postgraduate research or development work with equipment/instruments.

2. **ONE SENIOR LABORATORY TECHNICIAN**
—for the Deptt. of Petroleum Engineering

Qualifications

M.Sc. (Chemistry with specialisation in Physical Chemistry) or Physics with specialisation in General Physics or Electronics) in each case with two years' experience of Research and Development in the relevant field of interest in Pet Engg. with a minimum of 50% marks in the qualifying examination.

3. **ONE SENIOR TECHNICAL ASSISTANT (Instrumentation)**
—for the Deptt. of Petroleum Engg.

Qualifications

Diploma in Electronics with five years experience in handling (inspection, commissioning and maintenance etc.) of sophisticated instruments. Experience relaxable to two years in the case of persons holding Advanced diploma in Instrumentation. Knowledge of Mechanical Instrumentation is essential.

4. **ONE SCIENTIFIC ASSISTANT**
—for the Deptt of Petroleum Engg.

Qualifications

B.Sc. with Physics, Chemistry and Maths is essential. Two years experience in laboratory work in any educational/research institution or industry (essential).

5. **ONE SENIOR TECHNICAL ASSISTANT**
—for the Deptt. of Applied Geophysics.

Qualifications

M.Sc. in Applied Geophysics with two years research experience.

6. **TWO SENIOR SCIENTIFIC ASSISTANTS**
—for the Deptt. of Physics and Maths.

Qualifications

M.Sc. in Physics with two years research experience in Spectroscopy, X-rays/Radio activity under any Research/Educational Institution or Industrial Organisation. Knowledge of holding practical classes and setting up of laboratory equipment is essential.

7. ONE JUNIOR ENGINEER (Civil)

Qualifications

Diploma in Civil Engg. with two years of professional experience.

Pay Scale

Rs. 700-1300 for post at serial No. 1
Rs. 650-1200 for post at serial No. 2.
Rs. 550-900 for posts at serial No. 3, 5 and 6.
Rs. 425-700 for posts at serial No. 4 and 7.

Age Limit

Not more than 35 years for the post of Project Officer and Senior Laboratory Technician. 30 years for post of Senior Technical Assistant and Senior Scientific Assistant and 25 years for Scientific Assistant and Junior Engineer (Civil).

General

Other things being equal, preference shall be given to SC/ST candidates.

Further details and prescribed application form is obtainable from the Registrar, Indian School of Mines, Dhanbad-826 004 on sending a self-addressed envelope of size 30 x 12 cm affixing with a postage stamp of the value Rs. 3.45 paise. Completed application forms should reach the Registrar on or before **18.7.81.**

CANVASSING IN ANY FORM WILL BE TREATED AS DISQUALIFICATION.

S.P. Varma
REGISTRAR

(Continued from pre-page)

FACULTY OF COMMERCE
LECTURER IN
(13) Banking
(14) Business Administration
(15) Business Economics
(16) Co-operation (2 posts)
(17) Statistics

FACULTY OF EDUCATION AND PSYCHOLOGY
LECTURER IN
(18) Education
(19) Educational Administration

FACULTY OF FINE ARTS
READER IN
(20) Applied Arts
LECTURER IN
(21) Museology

COLLEGE OF INDIAN MUSIC, DANCE AND DRAMATICS
LECTURER IN
(22) Music (Vocal)
(23) Dance (2 posts)
(24) Dramatics

FACULTY OF HOME SCIENCE
LECTURER IN
(25) Biology (2 posts)
(26) Child Development (4 posts)
(27) Clothing and Textile (3 posts)

FACULTY OF SCIENCE
PROFESSOR IN
(28) Physics
(29) Statistics
READER IN
(30) Statistics
LECTURER IN
(31) Bio-chemistry
(32) Nutrition
(33) Botany (3 posts)
(34) Chemistry (3 posts)
(35) Geology (2 posts)
(36) Mathematics
(37) Statistics (Non-vacation post)
(38) Zoology (2 posts)

BARODA SANSKRIT MAHAVIDYALAYA
(39) Pradhyapakas (in different Shastras—3 posts)
(40) Pradhyapakas in English

M.K. AMIN ARTS AND SCIENCE COLLEGE AND COLLEGE OFCOMMERCE, PADRA.
LECTURER IN
(41) Gujarati
(42) History
(43) Mathematics
(44) English (2 posts)

FACULTY OF LAW
(45) Lecturer in Law

POLYTECHNIC
(46) Lecturer in English

SCALE OF PAY

PROFESSOR
Rs. 1500-60-1800-100-2000-125/2-2500

READER
Rs. 1200-50-1300-60-1600-Assessment-60-1900.

LECTURER/PRADHYAPAKA
Rs 700-40-1100-50-1300-Assessment-50-1600.

LECTURER; (Polytechnic)
Rs. 700-40-1020-EB-45-1200-EB-50-1400

RESERVATION OF THE POSTS IS AS UNDER

Number of posts reserved are mentioned in the Bracket

1. **Scheduled Castes (SC):** Sr. No. 5(1), 6(1), 10(1), 15(1), 18(1), 23(1), 25(1), 26(1), 33(1), 34(1), 35(1), 36(1), 39(1), 41(1).
2. **Scheduled Tribes (ST) :** St. No. 9(1), 12(1), 14(1), 17(1), 22(1), 24(1), 25(1), 26(1), 27(1), 31(1), 33(1), 34(2), 35(1), 38(1), 39(1), 42(1), 43(1), 45(1), 46(1).
3. **Socially and Educationally Backward Communities (SEBC)** S. No. 26(1), 33(1), 37(1), 38(1), 39(1), 44(1), 16(1).

If no suitable candidates are available from SC/ST/SEBC Categories, the posts will be filled up by other candidates who are found suitable.

The application form, duly completed, be sent to the Registrar, M. S. University of Baroda, Baroda-2 alongwith the Crossed Indian Postal Order for Rs 8.00 (Rs 2.00 for SC/ST candidate). For the post of Lecturer and Pradhyapaka and for Rs 10.00 (Rs 2.50 for SC/ST candidate) for the post of Professor/Reader payable to the Registrar, M.S. University of Baroda on or before **31st July, 1981.**

The candidates if called for interview will have to come **at their own expenses.**

K.A. Amin
REGISTRAR

MADURAI KAMARAJ UNIVERSITY

Palkalinagar, Madurai-625021
Notification No. 2/V/Advt/81
Dated-17.6.81

Applications in the prescribed form are invited for the following posts in the University.

School of Tamil Studies and Indian Languages
1. Professor of Telugu

School of Chemistry
2. Reader in Inorganic Chemistry

School of Biological Sciences
3. Lecturer in Plant Physiology

Scales of Pay

Professor
Rs. 1500-60-1800-100-2000-125/2-2500.
Reader
Rs. 1200-50-1300-60-1900.
Lecturer
Rs. 700-40-1100-50-1600.

General Qualifications

Professor

A first or high second class Master's Degree and a Ph.D. degree in the relevant subject with not less than 10 years of teaching (PG Courses) and/or research experience including guiding research at doctoral level of which atleast 3 years must be of a Reader or a position equivalent thereto.

Reader

A first or high second class Master's degree and a Ph.D. degree in the relevant subject with not less than 5 years of teaching (PG Courses) and/or research experience of which atleast 3 years must be of a Lecturer or a position equivalent thereto.

Lecturer

Consistently good academic record with a first or high second class Master's degree and a Ph.D. degree in the relevant subject with not less than 3 years of teaching experience at P.G. level.

Appointment of persons on deputation will also be considered, if the candidates are found suitable and the employer is agreeable to spare the services.

The prescribed form of application and full details regarding qualifications and experience required can be got from the undersigned on requisition accompanied by (1) a self addressed envelope with postage stamps to the value of Re 1.05 ps. affixed thereon and (2) State Bank of India Challan (Madurai Kamaraj University—Account No. 1) for Rs 10/- or Demand Draft for Rs 10/- payable at Madurai drawn in favour of the REGISTRAR, MADURAI KAMARAJ UNIVERSITY, MADURAI-625 021.

The last date for receipt of filled in applications is **20th July 1981**. Applications received after the due date will not be considered.

Note: Money orders and Postal orders will not be accepted.

B. Murugan
REGISTRAR

GARHWAL UNIVERSITY
SRINAGAR (GARHWAL)
Advertisement No. 12/81

Wanted Reader in Physics—One and Commerce—One (1200-50-1300-60-1900) and Lecturer in Philosophy—One (700-40-1100-50-1600).

Post of Reader Physics, Lecturer Philosophy are Permanent, Reader Commerce is temporary, likely to be made permanent.

Qualification for the post of Reader

1. (i) Good academic record with a Doctorate Degree or equivalent published work, and active engagement in research or innovation in teaching methods or production of teaching materials; and

(ii) Five years experience of teaching or research including at least three years as lecturer or in an equivalent position. Provided that the requirement contained in sub-clause (ii) may be relaxed in the case of a candidate who, in the opinion of the Selection Committee, has outstanding research work to his credit.

Qualifications for the post of Lecturers

2. (a) A doctorate degree or research work of an equally high standard in relevant subject; and

(b) Consistently good academic record with first or high second class Master's Degree, or an equivalent degree of a foreign University in a elevant subject. A candidate having obtained either an average of 45 per cent marks in the two examinations prior to Master's degree that is to say Intermediate and Bachelor's degree examinations (irrespective of the marks obtained in any of the two examinations), or 50 per cent marks in each of the two examinations separately, is said to have consistently good academic record.

3. If the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualification prescribed in sub-clause (b) of clause (2).

4. Where in cases referred to in clause (2) no candidate possessing Doctorate Degree or equivalent research work is available or is considered suitable, a person possessing a consistently good academic record (weightage being given to M. Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research Laboratory or organisation, on the condition that he obtains a doctorate or gives evidence of research work of equivalent high standard within 5 years of his appointment, failing which he shall not be able to earn future increments until he fulfils the requirements.

Application Forms can be had on request from the undersigned by enclosing a self-addressed stamped (Rs 2.90) envelop of size 13 cm x 10 cm. Last date for receipt of applications with Bank Draft of Rs 7.50 in favour of the Registrar, Garhwal University is **31.7.1981**.

P.L. Chhabra
REGISTRAR

GARHWAL UNIVERSITY
SRINAGAR (GARHWAL)
Advertisement No. 11/81

Wanted Professor of Economics—One (1500-60-1800-100-2000-125-2500) and Lecturers in Forestry—One, Horticulture — One, Economics—One, Sanskrit—One, Sociology—One and Commerce—One (Rs 700-40-1100-50-1600).

Posts of Professor Economics, Lecturer Forestry and Horticulture are permanent, Lecturer Economics and Sanskrit are temporary, likely to be made permanent and rest are leave vacancies for a period of one year or more and are likely to become clear vacancies in due course.

Qualification for the post of Professor

Either—Eminent scholar with published work of high quality and active engagement in research and ten years experience of teaching or research and experience of guiding research at doctorate level.

OR

Outstanding scholar with established reputation for significant contribution to knowledge.

Qualification for the post of Lecturers

1. (a) A doctorate degree or research work of an equally high standard in a relevant subject; and (b) Consistently good academic record with first or high second class Master's Degree, or an equivalent degree of a foreign University in a relevant subject. A candidate having obtained either an everage of 55 per cent marks in the two examinations prior to Master's Degree that is to say Intermediate and Bachelor's degree examinations (irrespective of the marks obtained in any of the two examinations), or 50 per cent marks in each of the two examinations separately, is said to have consistently good academic record.

2. If the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in sub-clause (b) of clause (1).

3. Where in cases referred to in clause (1) no candidate possessing Doctorate Degree or equivalent research work is available or is considered suitable, a person possessing a consistently good academic record (weightage being given to M. Phil. of equivalent degree or research work or quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research laboratory or organisation, on the condition that he obtains a doctorate or gives evidence of research work of equivalent high standard within 5 years of his appointment, failing which he shall not be able to earn future increments until he fulfils the requirements.

Application Forms can be had on request from the undersigned by enclosing a self-addressed stamped (Rs 2.90) envelope of size 13 cm x 10 cm. Last date for receipt of applications with Bank Draft of Rs 7.50 in favour of the Registrar, Garhwal University is **10.7.1981**.

P.L. Chhabra
REGISTRAR

UNIVERSITY OF POONA
Ganeshkhind, Pune-7

Applications in the prescribed form are invited for the following posts on or before **20th July 1981**.

1. **Professor in Mathematics and Statistics**—One post each.
2. **Reader in Statistics, Bio-Chemistry (Temp.), Sanskrit, Veda or Vyakarana in CASS (Temp.), Taxation Law**—One post each
3. **Lecturer in Microbiology, Organic Chemistry, Zoology (Two posts—One is temporary), History (Temp.) Library Science**—In Zoology only two posts, in other depts. one post each.

GENERAL QUALIFICATIONS

1. Professor: Must be scholar of eminence, must have to his credit re-

search work of independent merit, must possess fairly long experience of teaching of Post-Graduate classes and guiding advance research in the respective subjects.

2. **Reader**: Must possess fairly long experience of teaching of Post-graduate classes and guiding research in the respective subjects.

3. **Lecturer**: Must have a Doctor's Degree or published work of an equally high standard and consistently good academic record with First or High Second Class (B in the seven point scale). Master's Degree in a relevant subject or an equivalent Degree of a foreign University.

MINIMUM QUALIFICATIONS

1. **Professor**: As prescribed by the University for recognition as Post-Graduate Teacher (By Research).

2. **and 3. Reader and Lecturer**: As prescribed by the University for recognition as Post-Graduate Teacher (By Papers)

(1) Professor of Mathematics (Lokmanya Tilak Chair)—(One Post)

Qualifications

Outstanding work in areas of Pure/applied Mathematics.

(2) Professor of Statistics—(One post)

Qualifications Essential

M.A./M.Sc. in Statistics/Biometry with at least IIcl and Ph.D. in Statistics/Biometry or equivalent published research work.

Qualifications Desirable

Specialisation in one of the following branches:

1. Probability Stochastic Processes.
2. Multivariate Analysis.
3. Statistical Inference.
4. Non-Parametric Inference.

(3) Reader in Statistics—(One post)

Qualifications Essential

M.A./M.Sc. in Statistics/Biometry with atleast IIcl and Ph.D. in Statistics/Biometry or equivalent published research work.

Qualifications Desirable

Specialization in one of the following branches:

1. Stochastic Processes.
2. Statistical Inference.
3. Multivariate Analysis.
4. Theory of Sampling Designs.

(4) Reader in Bio-Chemistry—
(One Post) (Temp.)

Essential Qualifications

Must have Doctor's Degree or published work of an equally high standard and consistently good academic record with First or High Second Class (B+) Master's degree in Bio-chemistry. Must possess fairly long experience of teaching of Post-graduate classes and guiding research in the respective subject.

Specialization

Enzyme Chemistry/Fermentation/Protein Chemistry.

(5) Reader in Sanskrit
(One post) (Dept. of Sanskrit and Prakrit Languages)

Qualifications essential

1. The candidate must have to his credit independent research work of merit.
2. He must fulfil the minimum qualifications laid down by the University for recognition as a post-graduate teacher by research.

Qualifications Desirable

1. Knowledge of one or more modern European Languages.
2. Traditional training in Sanskrit.
3. Ability to speak and write in Sanskrit.

Job-requirement

The Department of Sanskrit and Prakrit Languages offers courses and carries Researches in Veda, Vyakarana, Vedanta, Nyaya, Mimamsa Dharmashastra, Alankara and Literature. So the scholar selected is expected to be able to teach two or more branches of these.

(6) Reader in Veda or Vyakarana
(One post) (Temp.)
(Centre of Advanced Study in Sanskrit)

Qualifications Essential

1. The candidate must have to his credit independent research work of merit.
2. He must fulfil the minimum qualifications laid down by the University for recognition as a post-graduate teacher by research.

Qualifications Desirable

1. Knowledge of one or more modern European Languages.
2. Traditional training in Sanskrit.
3. Knowledge of Linguistics and/or Avesta.

Job-requirement

The candidate should be able to teach Veda or Vyakarana to the Post-graduate classes. He must also be able to initiate research programmes in one or two fields from among the Veda, Vyakarana, Nirukta, Shrauta and Pratishakhyas.

(7) Reader in Taxation Laws
(One Post)

Essential Qualifications

1. Master's Degree in Law, or Second Class Bachelor's Degree in Law with FCA.
2. Doctor's Degree in Law or published independent Research work or considerable experience of taxation practice.

Note: (a) Candidates with specialization, research teaching or practice in taxation laws shall be preferred. (b) If a suitable candidate for Readership is not available, a Lecturer with higher starting salary can be appointed against the post.)

(8) Lecturer in Microbiology
(One Post)

(a) Lecturer's qualifications for P.G. Class.

(b) Specialization in General Microbiology.

(c) Preferably teaching experience to senior B.Sc. and/or P.G. Classes in the subject.

(9) Lecturer in Organic Chemistry: (One post)

Essential Qualifications

M.Sc. with first class or higher second class (B), Master's degree in Organic Chemistry of equivalent degree of foreign University.

Desirable Qualifications

Doctorate degree/Published work of high standard.

Specialization

Strong in Organic Reaction mechanism, stereo-Chemistry and Physical methods in organic tructure determinations.

(10) Two Lecturers in Zoology
(One is temporary)

(A) A temporary Lecturer in Zoology

Specialization in one of the following at the M.Sc. and Ph.D. levels:

(a) Molecular Biology
(b) Biophysics
(c) Neurophysiology

(B) A permanent Lecturer in Zoology

Specialization in one of the following fields at the M.Sc. and Ph.D. levels:

(a) Genetics
(b) Environmental Biology
(c) Experimental Parasitology
(d) Biophysics
(e) Toxicology

Published work in one of the above subjects would be a preferential qualification.

(11) Lecturer in History: (Tem. post) —(One)

(i) M.A. in History with High Second Class, and Ph.D. in History.

(ii) Knowledge of any one of the languages like Portuguese, Persian, French would be desirable.

(12) Lecturer in Library Science —(One post)

(1) As prescribed by the UGC for the post of Lecturer in any other discipline (Minimum qualification).

(2) M.Lib. (Second Class). Three Years Teaching Experience at the Post-graduate level in the Department of Library Science.

Desirable Qualifications

(1) Experience of work in University or Research Library.

(2) Knowledge of Marathi.

SCALES OF PAY

Professor : Rs. 1500-60-1800-100-2000-125/2-2500.

Reader: Rs. 1200-50-1300-60-1900.

Lecturer: Rs. 700-40-1100-50-1600.

Plus allowances admissible under University rules.

Age Limit

Professors below the age of 50 years, Readers below the age of 45 years and Lecturers below 35 years.

The prescribed form and detailed information available on request with (1) a self addressed envelope (23 cm x 10 cm.) bearing postal stamps worth Rs 1 Ps. 25 and (2) Rs. 10/- in cash or by a Postal Order drawn in the name of the Registrar, separately, for each post.

(a) Conditions relaxable/higher starting salary admissible in exceptionally capable candidates.

(b) In the case of Lecturers, other things being equal, preference will be given to candidates belonging to Scheduled Castes (including Scheduled Castes converts to Buddhism) and Scheduled Tribes.

S.P. Bhosale
REGISTRAR

NORTH EASTERN HILL UNIVERSITY

Lower Lachaumiere
SHILLONG-793001

No. F. 1-4/Estt-II/81 **Dated the 18th June, 1981.**

Applications are invited from the suitable candidates for the following posts :

Sl. No.	Name of the posts	No. of Posts	Scale of Pay
1.	Professor of History	1	Rs. 1500-60-1800-100-2000-125/2-2500/-
2.	Professor of Bio-Chemistry	1	-do-
3.	Professor of Mathematics	2	-do-
4.	Professor of Geography	1	-do-
5.	Professor of Geology	1	-do-
6.	Professor in Centre for Creative Arts	1	-do-
7.	Professor of Commerce	1	-do-
8.	Professor of Economics	1	-do-
9.	Reader in Economics (2 posts for Mizoram Campus)	3 3	Rs. 1200-50-1300-60-1900/-
10.	Reader in History (One leave vacancy).	2	-do-
11.	Reader in Zoology	1	-do-
12.	Reader in Botany	1	-do-
13.	Reader in Geography (One leave vacancy)	2	-do-
14.	Reader in Organic Chemistry	1	-do-
15.	Reader in Physics	2	-do-
16.	Reader in Educational Research and Studies (One for Mizoram)	2	-do-
17.	Reader in Centre for Continuing Education.	1	-do-
18.	Reader in Centre for Creative Arts	1	-do-
19.	Reader in English (2 posts for Mizoram Campus and 2 post for Nagaland)	4	-do-
20.	Reader in Commerce	2	-do-
21.	Lecturer in English (One leave vacancy).	3	Rs. 700-40-1100-50-1600
22.	Lecturer in Philosophy (One leave vacancy)	2	-do-
23.	Lecturer in History (One leave vacancy)	1	-do-
24.	Lecturer in Economics (One leave vacancy)	2	-do-
25.	Lecturer in Botany	2	-do-
26.	Lecturer in Bio-Chemistry	2	-do -
27.	Lecturer in Mathematics	1	-do-
28.	Lecturer in Educational Research and Studies	1	-do-
29.	Lecturer in Centre for Creative Arts.	3	-do-
30.	Lecturer in Commerce	1	-do-
	NON-ACADEMIC		
31.	Controller of Examination	1	Rs. 1500-60-1800-100-2000
32.	Project Officer (Campus Development).	1	-do-
33.	Assistant Registrar (Lien vacancy)	1	Rs. 700-40-900-EB-40-1100-50-1300/-
34.	Assistant Finance Officer	1	-do-
35.	Assistant Librarian	1	-do-
36.	Private Secretary to Vice-Chancellor	1	-do-

Essential qualifications

Sl. No. 1 to 8

An eminent scholar with published work of high quality actively engaged in research. Ten year's experience of teaching and/or research. Experience of guiding research at Doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Specialisation for Sl. No. 1
History of Modern India/South East Asia.

Specialisation for Sl. No. 3
(First Post) Statistics
(Second Post) Pure Mathematics.

Specialisation for Sl. No. 7
Specialisation in Managerial Economics/Accountancy.

Specialisation for Sl. No. 8
Mathematical Economics.

Sl. No. 9 to 20

(a) Good academic record with a Doctoral degree of equivalent published work.
(b) Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.
(c) Ability to interact with other discipline.
(d) About five years' experience of teaching and/or research provided that at least three of these years were as Lecturer, or in an equivalent position. This condition may be relaxed in the case of candidates' outstanding research work.

Specialisation for Sl. No. 9
(First Post) International Economics/Regional Economics/Economic Planning (Second and third posts) Economic Theory/International Economics/Classical Political Economy/Planning and policy.

Sl. No. 12 Specialisation in Plant Physiology or Cytogenetics.

Sl. No. 15 (First post) Experimental Nuclear Physics. (Second post) Experimental Laser Physics/Spectroscopy.
Sl. No. 14—Desirable-Specialised in any one of the modern fields of organic Chemistry with sound knowledge of Spectroscopic techniques.
Sl. No. 20—(First post) Specialisation in Managerial Economics (Second Post) Specialisation in Accountancy.

Sl. No. 21-30.

(a) A Doctoral degree or research work of a high standard and
(b) Consistently good academic record with 1st or high 2nd class (B in the seven point Scale) Master's degree in a relevant subject or an equivalent degree of a foreign University. Having regard to the need for developing inter-disciplinary programme, the degree in (a) and (b) above may be in relevant subjects.

Specialisation
Sl. No. 24 (First port) Economic Theory with ability to teach Mathematics. (Second post) open.
Sl. No. 30—Specialisation in Statistics/Accountancy.

NON ACADEMIC POSTS

Sl. No. 31—Essential

(1) At least Second class Master's degree in Arts, Science or education or any other faculty (2) Adequate experience of conducting examinations at University level.

Desirable

(1) Administrative experience in a University Office (2) About 5 years experience in teaching in a degree college or a University.

Sl. No. 32.

Must be a Degree holder in Civil Engineering or AMIE in Civil Engineering with not less than 20 years experience in building and road construction and must not be below the rank of the Superintending Engineer with four to five years experience in that capacity with sufficient experience in this line. (the post is purely temporary).

Sl. No. 33

(a) Degree in Arts, Science or Commerce.

(b) At least 10 years experience in a responsible position under Govt./University or in a large Educational Institute or Business Organisation of repute.

(c) Must have good knowledge of procedure of General Administration/or Accounting of Cash and other transactions preferably both and be able to draft reports and minutes of Conferences.

Desirability

Experience of supervision of Academic work, Assessment, Personnel recruitment/Service rules, Student Welfare work.

Sl. No. 34

(a) Degree in Arts, Science or Commerce.

(b) At least 10 years in Secretarial/Administrative work and considerable drive and efficiency in handling Establishment matters in a University, Govt. or Semi Govt. Organisation.

(c) Adequate knowledge in University Financial Administration, Govt. Accounts and Commercial Bookkeeping Systems, Collection of revenue, Provident Fund transactions, payment of Suppliers and works bill and Compilation of Budget Proposals and Financial Accounts.

Sl. No. 35

(a) MA/MSc./B.Com 1st or 2nd Class with B.Lib.Sc. 1st or 2nd Class.

OR

(b) BA/B.Sc./B.Com. 1st or 2nd Class with M.Lib.Sc. 1st or 2nd Class.

(c) Experience in working in a University/Research Library for 3 years.

Age

Candidates must not be less than 18 years and more than 30 years on **1st May, 1981** (5 years relaxation will be admissible to candidates belonging to Scheduled Tribes/Scheduled Castes candidates). Age may also be relaxed to those who are in Govt. Service/Autonomous body provided they apply through proper channel.

Sl. No. 36

(a) Degree in Arts, Science or Commerce,

(b) At least 6 years experience in a responsible position under Govt/University or in a large Educational Institution or Business Organisation of repute, and

(c) Must have dealt with confidential matters.

Candidates appointed should be prepared to serve anywhere within the Jurisdiction of the North-Eastern Hill Universty.

Applications on Plain paper indicating Name, Present Address, Home Address, Age, Qualifications in details, etc., etc., should reach the undersigned on or before **30th July, 1981** together with an Indian Postal Order for Rs. 5/- (Rs. 2.50 in case of Scheduled Tribes/Scheduled Castes candidates) payable to the "North-Eastern Hill University", Shillong as application fee.

NOTE

1. Persons in service should submit their application through proper their employers.
2. Candidates called for interview will have to appear before the Selection Committee at the office of the North-Eastern Hill University or at any place specified. A return first class railway fare for the post of Serial Number from 1 to 8 and Second Class railway fare to the rest of the posts shall be paid by the University from the place of start to the place of interview and back. The rate of travel allowances permitted by the Central Universities will apply.
3. All appointments will be subject to a period of probation.
4. The posts are open to all citizens of India who satisfy the required qualifications but some preference may be given to equally qualified ST/SC candidates.
5. The University reserves the right to make appointments under Statute 21 of Act, if necessary.

REGISTRAR

MAHARASHTRA ASSOCIATION FOR THE CULTIVATION OF SCIENCE RESEARCH INSTITUTE

LAW COLLEGE ROAD
PUNE 411004

Applications are invited for admission of research scholars for Ph.D. degree of the University of Poona in the following disciplines :

1. **Botany** (Mycology and Plant Pathology; Systematic botany and Ethnobotany; Plant Genetics)
2. **Biometry and Statistics**
3. **Chemistry** (Organic, Physical and Biochemistry)
4. **Geology and Palaeontology** (Invertebrate Palaeontology, Stratigraphy)
5. **Microbiology** (including Agricultural Microbiology)
6. **Zoology** (Genetics and Cytogenetics; Entomology)

Candidates must possess First class or **at least** a higher second class M.Sc. degree in the respective disciplines and will be eligible for application for research scholarships (UGC, CSIR, MACS etc.)

Blank application forms with prescribed conditions can be had from Registrar, M.A.C.S. personally or on sending a Postal Order/M.O. for Re 1/- drawn in favour of the Registrar, M.A.C.S. Pune-4 and a self-addressed envelope (size 9½" x 4⅛") bearing stamps for Re 0.50.

Last date for receiving completed applications is **31st July, 1981.**

C.S. Nakate
REGISTRAR

UNIVERSITY OF RAJASTHAN

JAIPUR

Advertisement No. 6/81

Date : June 16, 1981

Applications are invited (through proper channel in case of those who are already in employment) for the post of Librarian in the grade of Rs. 1500-60-1800-100-2000-125/2-2500, so as to reach this office on or before **7th July, 1981** in the prescribed form available from the Registrar's Office on prepayment of Rs. 4/- (Rs. 3/- extra in case required by post).

Essential qualifications

1. Good academic record with first or high second class Master's degree in a subject in addition to post-graduate degree in **Library Science** with a Doctorate degree or equivalent published work of high standard and preferably with experience of guiding research and with knowledge/experience of Library Services and Management.
2. Atleast ten years' experience of teaching post-graduate classes and research, or of research in an independent capacity in an organisation of higher learning and research or in a responsible post in a Library for advanced students and research workers.

Persons who applied earlier for the post of Librarian-cum-Professor of Library Science/Professor of Library Science in response to earlier advertisements are required **to apply afresh.**

Higher start may be given to deserving candidates. Retired persons need not apply. The University reserves to itself the right to consider candidates who might not have applied but who are otherwise eligible and suitable.

REGISTRAR

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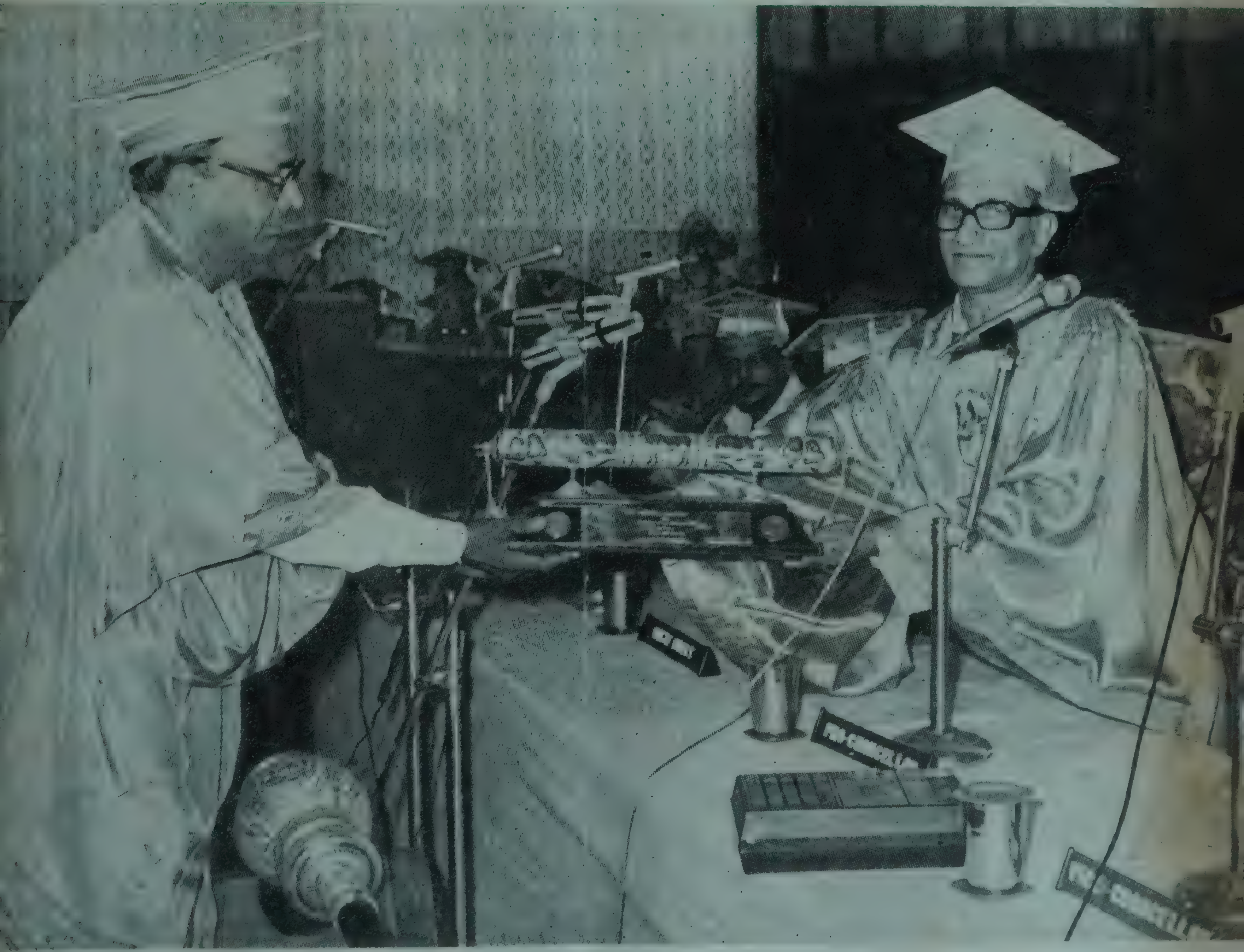
University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH JULY 15, 1981



Shri Bhagwantraoji Gaikwad, Pro-Chancellor, Konkan Krishi Vidyapeeth and Minister for Agriculture, Maharashtra State, presenting the Scroll of Honour to Principal Jayantrao Patil for his meritorious Agricultural Extension work in the tribal area of Maharashtra.

GUJARAT AGRICULTURAL UNIVERSITY

NEEDS

The following teaching/scientific personnel for its N.A.R.P. Projects and in Veterinary/Dairy faculties. The candidates who fulfill the qualifications and desire to apply may send their applications in plain paper with six copies of Bio-data to the Registrar, Gujarat Agricultural University, Sardar Krushinagar (Dantiwada) 385 506, Dist: Banaskantha.

Sr. No.	Name of the Post, Pay-scale & Discipline	Required Qualification
1	2	3
Part A		
1.	Principal 1500-2500 Dairy Science College	1. A good Bachelor's degree in the subject pertaining to the faculty. 2. Ph.D. or equivalent degree in the concerned field. 3. Consistently good academic record with first or higher second class (B plus) at Master's degree or an equivalent degree of a foreign University. 4. Atleast 10 years' experience of teaching/research and extension education in the concerned field. 5. Good knowledge of the educational system prevalent in the world and familiarity with modern concept of organisation and coordination of teaching, research and extension education activities.
2.	Research Scientist/Professor 1500-2500 Soil Science, Agronomy, Animal Management and Production, Vet. Pathology, Bio-Chemistry, Nutrition, Vet. Medicine	1. A Good Bachelor's degree in the subject portaining to the Faculty. 2. Ph.D. or equivalent degree in the concerned field of specialised subject. Consistently good academic record with first or higher second class (B plus) at Master's degree in relevant subject or equivalent degree of a foreign University. 4. At least 10 years' experience of teaching/research/extension education in the concerned field of specialisation.
3.	Associate Professor/Associate Research Scientist. 1200-1900 Agronomy, Plant Pathology, Plant Breeding, Agrostology, Soil Science, Entomology, Agri. Extension Education, Agril. Economics, Agri. Engineering, Animal Science, Vet. Pathology, Animal Genetic and Breeding, Animal Husbandry, Animal Nutrition, Pharmacology Bio-Chemistry, Nutrition Home-Science (Eco) Clinic and Bacteriology	1. A good Bachelor's degree in the subject pertaining to the faculty. 2. Ph.D. or equivalent degree in the concerned field of specialised subject. 3. First or Higher Second Class Master's degree in the concerned relevant field of specialisation or equivalent degree. 4. Atleast seven year's experience in the concerned field of teaching, research and Extension education. (a) Provided that in case of teachers of the same cadre of the faculty of Agril. Engineering and Technology Ph.D. degree shall be relaxed.
Part B : For Veterinary Science and Animal Huabandry College, Sardar Krushinagar (Dantiwada) Dist: Banaskantha		
1.	Principal 1500-2500 Veterinary Science/Animal Husbandry	**As per Sr. No. 1 in Part A**
2.	Professor 1500-2500 Vet. Anatomy, Vet. Physiology, Vet. Bio-Chemistry, Livestock and Production Management.	**As per Sr. No. 2 in Part A**
3.	Associate Professor 1200-1900 Vet. Anatomy, Vet. Physiology, Vet. Bio-Chemistry, Livestock and Production Management	**As per Sr. No. 3 in Part A**
4.	Assistant Professor 700-1600 Vet. Anatomy, Vet. Physiology, Vet. Bio-Chemistry, Livestock and Production Management	1. A Good Bachelor's degree in the subject pertaining to the faculty. 2. Ph.D. or equivalent degree in the concerned field of specialised subject. 3. First or higher second class Master's degree in the concerned relevant field of specialisation or an equivalent degree.

The Retired Scientists/Teachers who are physically competent to work can also apply for the post pertaining to Part B only. They will be appointed under the scheme of Retired Scientist under which they will get honorarium of Rs. 1000/- per month only and the appointment will be for one year in the first instance.

If qualified candidates will not be available for the post of Assistant Professor in Part B the Ph.D. qualification will be relaxed and instead of Ph.D. the candidate must have three years experience in the field and also possess first Class Bachelor's and Master's degrees. For such candidates the pay-scale will be Rs. 700-1300 and will be posted against the post of Assistant Professor. They will be designated as Teaching Associate.

The age limit for the post at Sr. No. 1 in part A and B is below 48 years and for others 45 years.

The age limit is relaxable in case of Gujarat Agril. University employees.

The candidate applying for the post will have to send an I.P.O. of Rs. 10/- in favour of "Comptroller, Gujarat Agricultural University, Sardar Krushinagar (Dantiwada)." The candidates already in service of this University should send their applications without the I.P.O. through their respective officers.

The selected candidate particularly for the posts in Part B will have to join the duties at Sardar Krushinagar (Dantiwada) with immediate effect, and if the candidate is not in a position to do so need not apply.

The last date of receiving applications for Part A is 27.7.81 and for part B is 13.7.1981

Period spent under P.G. Training will not be considered as experience.

REGISTRAR

UNIVERSITY NEWS

VOL. XIX JULY 15
No. 14 1981

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Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : ANJNI KUMAR

Information Service
28 JU
C.F.T.R.I., MYSO

Open University

G.M. Malik*

Universities the world over have been largely concerned with three important functions viz., the preservation of knowledge through libraries, museums, archives etc., transmission of knowledge from one generation to the next and extension of the boundaries of knowledge through research and inquiry. They now realize the need for carrying knowledge and skills to people in all walks of life and to accept service to the community as one of their important responsibilities. The community which has paid for the maintenance and running of these institution, have a right to be benefitted from their work and achievement.

Universities of the air became a reality in most advanced countries. The Open University system and distance teaching technique became not only the fashion of the day but a prestigious adventure for many. People began to realise that it is the duty of the institutions of higher learning to open their doors to the working class. Providing opportunities for them to continue their education at their own speed and based on their interests, if they desire to do so.

Education has been concerned as one of the most powerful instruments for socio-economic upliftment of an individual and for bringing about socio-economic transformation on egalitarian lines. Against the national vision and dream, contained in the preamble and directive principles of the constitution and in the national policy of education, the educational reality presents some startling contrast :

(i) About 60 per cent of the people (age 10 and over) are still illiterate and have received none of the benefits of this vast educational system.

(ii) About 20 per cent of the children, mostly the lowest of the low, never enter the schools at all. They are born poor and continue to be poor and the formal system of education by-passes them altogether.

(iii) Of these children that enter the schools, nearly half drop-out by class V and nearly three-fourths drop-out by class VIII, only about 15 per cent reaches class XII and less than one per cent get the first degree.

(iv) 80 per cent of those who complete colleges and University come from the top 20 per cent of society.

The formal face-to-face teaching system cannot tackle the problem of educating out-of-school students, working adult and socially and economically disadvantaged learners. It needs an alternative system which is viable, forward looking and flexible

(*Continued on page 405*)

**Faculty of Education, University of Kashmir.*

Financing of Universities

D. K. Ghosh*

Relatively untilled and comparatively neglected is the area of study of financing of Universities. Hardly has any systematic study been attempted to suggest a concrete basis for financing the Universities, an absence of which has already resulted in much confusion and chaos in the financial conditions of the Universities which have contributed consequential problems in their smooth running. The Education Commission Report (1964-66) has, however, as part of the chapter on the Governance of the Universities, dealt with this problem and offered considered suggestions.

Finance occupies an important place in the functioning of the Universities. Conceptually, Universities are not expected to function on commercial basis i.e. the profit motivated management or industrial concerns.

Fundamentally, the Universities are meant to provide "intellectuals" to the society for various walks of life so that the trained manpower needed for the society could be supplied for proper development of the country.

Conceived of the idea and approach about the fundamental character of the Universities as mentioned herein before, the norms for financing the Universities should be clear. Precisely, in financing the Universities, the basic approach should not be the profit or loss but the needs of the University to function without "financial stress and strain" so as to enable the functionaries to devote freely to achieve the academic objectives.

Contrary to the expectations, it must be admitted that if the Universities are facing any 'constant crisis', it is the problem of finance. Problems of students and of other functionaries in the University system may by acute at one time and may be less or may even disappear at another time. But the inadequate finance always keeps the Vice-Chancellor and the Registrar obsessed by the fear of problems of today and tomorrow which ultimately mar the progress of other important work of the University.

Financing two-tier system

Broadly, financing of Universities is required in a two-tier system, one—Maintenance and the other Development.

Maintenance grants

In so far as the Maintenance Grant is concerned although the system of Block Maintenance Grant is gradually being introduced in the Universities, what is important is how such grant is fixed i.e. what norms are applied :

(i) to review the financial position of the University of the previous period which normally is the past five years. This period is however, likely to vary from State to State;

(ii) to view the deficit that may have accumulated over the past period concerned;

(iii) to provide normal growth in re-fixing the Block Maintenance Grant for the next period;

(iv) to allow additional provisions on different items of maintenance nature.

It is believed that once these points are covered satisfactorily, that is in favour of the needs of the University, little or no serious problem will follow. For a proper treatment of each of the above case, so as to take favourable decisions, it would be necessary that a broad view is taken to treat education besically as a subject matter of welfare and therefore a long investment.

Even the Education Commission has suggested that "...the grant giving authority does not exercise too much control and rigidity of approach, as a system of checks and balances—devised in other days for other purposes—is out of tune with the needs of a rapidly developing University administration and finance."

While considering the re-fixation of the Maintenance Grant, the following broad principles should be given due weightage:

Review of financial position

(a) It is just possible that in reviewing the financial position of a certain University of the previous period, the Government may find a number of points which ordinarily would attract criticism and go against the University. But in doing so, the most important factor that must be borne in mind is the maxim of the Educational Administration which is fundamentally different from the maxims of General Administration. In the course of the five year (or a smaller varying period in different states), how the University or more appropriately the Vice-Chancellor had to face problems and tackled them should not be lost sight of.

(b) Little departure from the Rules of the Grant or from the age-old Rules is frowned upon by the grant giving authority which may lead to disallowing the expenditure both for wiping out deficit and allowing the same item of expenditure to continue. The Education Commission has further disfavoured the rigidity in such matters in these words :

> "What is worse, rules, procedures and techniques once adopted tend to be continued indefinitely in their original form even when changed conditions and circumstances have made them

---

* *Registrar, Indira Kala Sangit Vishwavidyalaya.*

obsolete or incompatible with the real needs and interests of the institutions. Such rigidity seriously retarts progress and development."

(c) In short, having regard to the important role that Education, particularly Higher Education, is to play, rigid attitude should be avoided and all expenditure incurred in the interest of the University should be accepted. A liberal attitude in this regard will not really amount to any frightening figure for one State for all its Universities.

(d) Not infrequently, instructions are directed to effect economy in expenditure. Experiences reveal that its having effected economy and thereby reducing the expenditure in a certain period, has really gone to the disadvantage of the University at the time of refixation of Block Maintenance Grant for infixing the grant either the expenditure of the last year of the previous period or the average expenditure of the last three years of such period is taken into account. This follows that between two Universities—one having effected economy and the other not having done so, the former is the sufferer. It is always necessary to stipulate that effecting economy and reducing expenditure should not go to the disadvantage of the University, if not to its advantage.

Wiping out of deficit

(a) Hardly has any University escaped the almost inevitable situation of deficit. While the figures of deficit varies from University to University depending on the sources of income, character and size, yearly and mounting deficit could be considered almost as a normal matter.

(b) When looked into the causes of deficit of the different Universities, while it may be difficult to locate all reasons of deficit for the entire amount, it is possible to trace some of them. For example, after the fixation of the Block Maintenance Grant which is static for full five or three years, the reasons of deficit among other (reasonable or unreasonable) items could be the following :

(i) Increase in the Railway Fare and Air Fare for purposes of TA.

(ii) Increase in the Postal Rates and Telegram and Telephone charges.

(iii) Increase in the cost of Stationery Articles and other Articles of recurring nature.

(iv) Unforeseen expenditure on Maintenance of Buildings and Roads.

(v) Increase in the rates of Remuneration to Examiners.

(vi) New decisions to provide some additional service facilities to students.

(c) It needs hardly be said that revision of Postal Rates or increase in Railway or Air Fare resulting in price escalation in other articles is almost an inevitable result and hardly any scope is provided to bring relief to the Universities when the total additional expenditure on account of such small items comes to a sizeable figure. Same is true when Telephone and Telegram charges are increased. Either at the instance of the University or on demand, the Universities are required to do some work in Buildings or Roads even when normal budget does not permit. A sudden decision to raise the exam remuneration without corresponding rise in exam fees also stretches the budget. Besides all these, not infrequently, unpredictable demand of students for some otherwise not provided facilities also cause deficit.

(d) The purpose of mentioning all these is to emphasise the need that there should be a suitable machinery to assess the additional expenditure involved on account of such price escalation and unpredictable and otherwise not provided items of expenditure which upset the budget of the University and become, one after another, contributory factors to deficit. Unless some machinery is set up to assess the yearly additional expenditure outside the capacity of the normal budget, it would be impossible for the Universities to avoid deficit.

(e) Coming to the question of augmenting revenue of the University, it is only the Examination Fee which alone can fetch some sizeable amount. But how such increase is reacted by the students is widely known to all.

Provision of normal growth

There must be a definite percentage to provide normal growth in refixing the Block Maintenance Grant. Yearly additional expenditure on increments and consequential liability on C.P.F. and DA etc. including other rise in expenditure amount to a sizeable figure. It is, therefore, necessary that a liberal view must be taken to provide normal growth. Unless this is done, it would be widening the scope for deficit.

Additional provision of expenditure

In re-fixing the Maintenance Grant how additional provisions should be made requires considerable consideration. In this regard, the necessity would surely vary from University to University depending on the character, size and scope of functioning of the University. But it is certain that every time, while fixing the Maintenance Grant, some additional provisions would be necessary keeping in view the increased activities of the University.

Development grants

Comparatively, the position of financing of Development Grants is better. It may not be wrong to say that except in the case of Library Books and Equipment, a number of Universities find it difficult to spend out the approved development grants. However, there are certain difficulties which are more a matter of procedure than anything else.

By the time the University Grants Commission communicates, on the basis of the Report of the Visiting Committee, approval of Development Schemes, about 1 to 2 years time of the Plan period is gone. In respect of the State Universities, another 6 to 12 months are required to obtain the final approval of the State Government for Matching Share

(*Continued on page 393*)

Rural Energy Systems

Nirmal Singh*

Energy is a critical aspect of the national development process. It is required for cooking, for lighting and heating, and for social services like health centres, water supply and sanitation. It is needed for irrigation and other agricultural operations, in food processing and transportation, in the production of chemicals including fertilisers, pesticides and machines including farm equipment. It is needed for production of cloth and for building materials. In fact there is hardly any social need, including defence and civil administration where energy is not needed.

The growth rate of energy consumption in developing countries is found to be greater than in industrially developed countries. From 1960 to 1974, the average annual energy consumption growth rate for low income countries was 5.7% and for middle income countries 7.6%, compared to 4.9% for the industrialised countries. From 1974 to 1976, the growth rate for lower income countries was about 5%, while that for industrialised countries it was 1.3% only.

The developing countries that rely heavily on imported petroleum find themselves in competition with rich countries for available oil and the cost of that competition is high.

Although, the energy situation in our country is very grim, it is not hopeless situation. The possibility of developing additional fossil fuel and other indigenous resources can help relieve energy pressures in our country. Fortunately we have relatively unexploited resources of coal, hydroelectric, wind, solar and geothermal energy. Significant energy savings can often be made with a relatively small investment.

The traditional sectors of our country make extensive use of non-commercial or non-conventional energy sources. Firewood, charcoal, plant and animal residues, human and animal power are used in the household and for a variety of agricultural and rural industral tasks. It is estimated that while these forms of energy supply only about 5% of the world energy consumption, they represent about half of the total energy production of our country. But it should be kept in mind that the rate of renewal of plant based energy resource is very slow, whereas the depletion may be very high. The balancing of these rates requires thoughtful and scientific planning reaching down to the base of our society. The balancing of the non-renewable with the renewable resources is another dimension of the same environmental question. In this context, the biological components of our environment can also be identified as a source of energy. For example, the energy required to produce nitrogeneous fixing organisms, such as rhizobium and blue-green algae, are used as supplements. This indicates that by increasing the efficiency of these organisms by means of bio-engineerings, dependence on the high energy technology which we are now pursuing, may be reduced. Utilisation on micro-organisms for the production of chemicals e.g. by means of fermentations, is a promising avenue for our country, the scope of which has not been fully assessed. Sources such as solar, wind, tidal, geo-thermal are intermittent. Consequently they may act as supplementary sources, or where continuous supply of energy is not needed such as pumping water for irrigation. On the other hand, these resources problems. These are however low-efficiency sources but unlimited in magnitude. Efforts designed to harvest and harness solar energy are likely to be rewarding, as this has been designated as the only reliable source for the future.

Solar refrigeration

In the area of solar energy, devices to use solar energy for purposes of refrigeration and food presentation, for desalination of drinking water, for drying of grains, for heating of water for domestic and industrial purposes, for distillation of water, for heating and cooling of buildings, for generation of electricity through solar cells etc. have already been perfected. Efforts are being made to use solar energy for generating mechanical power for pumping water and for industrial operations.

I.C. Engines using Biogas, alcohol and hydrogen for producing mechanical energy for pumping water, industrial uses and for electric generation have already been developed. Biogas itself can be utilised for cooking, lighting etc. and still the residual material is fully available as fertiliser.

Other avenues can also be explored to convert waste agricultural and forest products into useful fuels like alcohol and to other forms of solid smokeless fuels, which can be usefully used for cooking.

There are innumerable small springs in the Himalayas, which can produce electric energy for local consumption. Serious work is going on to develop these micro-hydro power stations. IIT Delhi has already developed use of geo-thermal energy for cold storage purposes in Himachal Pradesh. Efforts are on to create an integrated system of energy based on sun, human, animal and biogas resources and conserving the same by recirculation of all waste products. Efforts are also being made to create energy forests on waste land, not fit for agriculture. Question of renewal of the source of energy is very important for a lasting solution.

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None of these alternative energy sources and technologies will alone offer a complete solution to the energy requirements for national development. It is clear, however, that all countries must use the broadest possible range of available energy resources, and must devote considerable effort to identifying, and developing these resources. Good information about and analysis of energy consumption is necessary if non-conventional energy sources are to be used effectively; economic and behavioural factors can be as important as technological feasibility. In some cases, for example, more efficient appliances have not been accepted because their use involved unfamiliar behavioural patterns in domestic work. In some cases, the initial capital costs of a technology may be out of reach of most potential users, even though the technology would save money over its life time. Some energy sources or technologies may not be economically attractive at present prices but they soon may be as other energy sources rise in price or become scarer.

Because of the constraints on resources and capital faced by most developing countries including ours, the collection of basic energy-related information is essential for sound planning related to national development needs. This is particularly true of information situation in our country which can be characterized as follows (Palmedo *et al* 1978: 77-78): Information on the supply of non-commercial energy is not good, for consumption the situation is even worse. Very few field studies have been done, so estimates are largely based on guesses and suppositions.

Recognizing that existing information about energy use in the Indian context is limited in scope and inadequate for effective analysis and planning, the inter disciplinary Applied Systems research group at this Institute has been engaged for the last several years in scientific energy surveys, case studies and analysis for a sample set of rural-clusters in the hill and plain regions of U.P.

Rural energy systems analysis therefore, is an activity as diverse as the many facets of the energy-economy-environment triad itself. To be of maximum utility to policy formulation in this important area, quantified systems analysis must be responsive to the unique requirements posed by culture and location specific energy policy issues and must be supplemented by a broad range of policy analysis related to those political and social aspects that are not amenable to quantitative analysis. Most important to the responsiveness of systems analysis to policy formulation is a close working relationship between systems analysis group and those with policy and implementation responsibilities. Recently in National Workshop on select Dimensions of Rural Energy Systems held at Indian Institute of Technology Delhi participants from 27 organisations associated themselves with the workshop and several strategies were adopted. The general consensus adopted certain resolutions as a result of idea-engineering approach exercise for Rural Energy policy for India 2001 A.D. was:

To devise an adequate technology extension system to provide to the researchers feedback on the suitability and cost effectiveness of their design and invention.

The first step towards ensuring local participation would be to decide upon a given course of action in consultation with the local people. This consultation process would be particularly useful in terms of location of sites etc.

The funding (R & D) agencies should be quite clear in their priorities to encourage research only on relevant technology packages. For this purpose the funding agencies might also initiate projects more often in future rather than confining their activities excessively to scrutinising the projects submitted.

(a) The public relation wing of the Government, business and industrial houses and semi-autonomous organisations, corporations should launch a vigorous campaign to inform the public of the energy imperatives.
(b) Vetting of school textbooks specially on general science for evaluation of the quantum of energy related information contained therein should be undertaken.
(c) The mass media and existing extension networks should be suitably utilised to convey energy related information.
(d) Decision Centres related to rural development and rural energy systems should be moved out of the urban context to the extent possible.
(e) Technology innovation having a potential for commercial viability may be made available to enterprising individuals at an entrepreneureal level (for example if an individual wished to set up a bio-gas plant and market its products it should be encouraged).
(f) Wherever possible voluntary agencies should be involved.
(g) The present programme of afforestation should receive further impetus.
(h) Energy plantation and social forestry schemes should be popularised on much wider scale.
(i) Social forestry as a subject of academic pursuit should be encouraged.
(j) Efforts should be made for cooperatives operating the technologies rather than individuals only operating them.
(k) It should be possible to undertake selective subsidy programme to aid in certain phases of technology adoption and to bring the rural poor to rise above their financial and other constraints in having access to the technology packages. Banks should receive clear guidelines on various promotional funding programmes related to rural energy projects.

Comprehensive village energy surveys are required. Suitable financial deterrants should be counted to discourage conspicuous unproductive consumption of energy. The idea of Energy tax to be tied on the income tax based on unproductive consumption of energy was mooted by some participants. ☐

Educational Journalism in India*

A. V. Gadgil

To understand the implications of educational journalism in depth, it will be necessary to explore some of its areas like the present status, the newspaper and educational problems, the problems of editing, publishing and distribution, management and financing of journals.

Present status of educational journalism

The present status of educational journalism in India is neither very high nor very happy. Educational journals are limited in number and have limited subscribers. Paucity of funds affects quality of the journal. For boosting sales state government/departmental approval is required. Teaching community spends a lot on other things but scarcely subscribes to any educational journal individually. Teachers do not feel like reading the journals even though they are readily available. Educational journalism is not likely to prosper as long as the teachers, the workers in the field, do not patronise the journals and mould them to their requirements. Teachers must come forth with their views, highlight their problems, suggest solutions and make the journals their own. Though new journals are coming up and trying to get established some established journals are found abruptly stopping publication due to financial difficulties.

The present status of educational journals cannot be said to be a desired one and certainly not an ideal one. Efforts need to be made to motivate teachers to come forward to undertake responsibility to serve education and workers in the field, and give qualitative and quantitative status to the journals.

Newspaper and educational problems

Many newspapers in India have a wide sale and every day the number is increasing. Newspapers which cover maximum news first and present it in a convincing manner become popular. Educating the masses is the aim of all newspapers which present news, comments and opinions in such a manner as to interest, amuse and instruct the public. Newspapers flash news concerning education here and there and rarely deal and discuss educational problems in depth. Just as education is neglected by states and local authorities, so it is by the newspapers. It is because the general public is not fully aware of the educational problems and do not feel education a problem compared to other socio-economic problems which an individual has to face in life. Since newspapers do not find adequate place to highlight educational problems, it is the duty of the teachers to start their own journals and patronise those that are doing good service to the teaching fraternity. Converting newspapers to view education as an important social problem and to make them reserve a regular corner or a column for education has to be tried through persuasion. Meanwhile, periodicals in the field should serve the cause.

Problems of editing, publishing and distribution

Educational journals do not thrive and get adequate status due to many reasons. Of these, editing is the first and the foremost. The job of editing an educational journal has to be a full-time one and requires a properly trained and professionally qualified person. Though courses in journalism are now available, we scarcely have editors of the educational journals out of these degree, diploma holders. There are valid reasons for this. Most of the journals are either managed by the departments, educational institutions or professional organisations and hence editors are chosen from the staff of the institutes or elected/nominated by the organisation. On-the-job training and learning through doing is the only professional training editors have. If the choice of the editor is right and the editor is able to save a few hours each day beyond his full load of work, the journal is lucky. Otherwise, he is likely to endanger the very existence of the journal. The job of editing an educational journal is more difficult than that of any other journal. The educational journal has to supply information on various subjects while a non-educational journal has a set routine to follow. Editing a journal poses more problems to the unskilled, inexperienced editor. Editing articles, information and reports is, therefore, quite a job and needs expert knowledge and training.

The work of publishing requires patience. Apathy of compositors and proof correctors is a constant headache to the editor. He is not satisfied till the final assembling of material as per the format he has stipulated is complete. Alterations and additions go on till the final printing starts. Getting the journal printed is more difficult than editing it, for at present printing paper is scarce and prices are very high.

Distribution of journals when printed poses another problem which has to be tackled either by the organization or the department.

Management of educational journals

Management of educational journal is not easy as the required infrastructure is not easily available. Permanent office and all the paraphernalia are almost absent except where they are managed by Government Departments. As managing editors and sales managers are generally absent, the editor or his

(*Continued on page 405*)

**Paper presented at the Seminar on Educational Journalism held at Hyderabad in April, 1981.*

CAMPUS NEWS

Delhi accepts Khosla recommendations with modifications

The Executive Council of Delhi University has accepted six major recommendations made by Mr. Justice G. D. Khosla who inquired into the violent incidents on the campus during elections to the students' union last year. The most controversial suggestion that has been accepted relates to the police entry into the campus without the permission of the university authorities.

The Executive Council of the University decided that in case of criminal action by students the police can act without waiting for an invitation from the authorities. Mr. Justice Khosla's recommendation that the printing of posters during union elections should be banned was slightly modified by the Council and it was decided that the university should only appeal to the political groups and students not to print and paste posters for electioneering. The Council also accepted his recommendation that students who are found to have received foreign money for contesting elections should be disqualified and that the Press should be asked to play down the happenings on the campus and not attach much importance to union elections.

Besides, the university is to appeal to the political parties and politicians to keep away from the campus as suggested by Mr. Justice Khosla.

Chavan asks political parties to be away from campus

Mr. S. B. Chavan, Union Education Minister, inaugurated a State level vocational and work experience exhibition in Madras recently. He complimented the Tamilnadu Government for having convened an all-party meeting to suggest ways and means to keep politics out of campus. He said that if all political parties agreed on a common programme the Government would initiate steps in this direction. He made a strong plea for keeping educational institutions free from politics. If politics is kept away from the campus, 50 per cent of the troubles in the educational institutions would be over.

He also asked the teachers to give away politics. He said that it had come to the Government's notice that many from the teaching community were preaching their own political ideologies in classes. This was highly deplorable and objectionable. He called upon the teachers to adopt a self-imposed code of conduct in this regard. They could in their spare time help students belonging to the Scheduled Castes and Tribes in their studies so that these communities could come up.

There was a false propaganda that the new pattern of education excluded a large number of underprivileged from getting education. Officers and teachers should not allow such propaganda to come up. The Minister said that the Government was proposing to conduct a survey on the potential vocational courses that could be taken up to cater to the needs of the people of various regions.

On the issue of capitation fee, the Minister said that while he opposed educational institutions charging capitation fees, voluntary payments by well-to-do parents for improvement of these institutions could be accepted. He favoured charging a nominal fee from all the students towards provision of better amenities.

Quick development for MDU campus planned

The Maharshi Dayanand University will develop its campus at the present site. Mr. J. D. Gupta, Vice-Chancellor said in Rohtak that a committee has been constituted to tackle the various technical problems involved in developing the campus. Special care will be taken to provide adequate drainage to make the land fit for tall buildings. About 300 acres of additional land between the campus and the Bohar distributary has been taken over from the Haryana Urban Development Authority and the university will now have a 600-acre campus.

The university will start construction work in a big way. It proposes to spend about Rs. 2 crores during the current year on building the administrative and two teaching blocks. The Boys' Hostel will be constructed to accommodate over 140 students at a cost of Rs. 40 lakhs.

Lack of physical facilities have so far been hindering the expansion of the university all these years. It has no more than 1200 students on its roll which is less than the strength of an average undergraduate college but still the university has to run classes in shifts for want of accommodation.

Annamalai drops semester in some faculties

The Annamalai University has decided to do away with the semester system in arts and science faculties from this academic year. The old order is being restored. Sessional marks and other components of the semester system have been found to be an impediment in the academic stream. The switch-back was announced by the Vice-Chancellor, Prof. S. V. Chittibabu, at a meeting of the Academic Council of the University held at Annamalainagar. Inadequate coverage of the syllabi due to frequent interruptions, late conduct of examinations, overlapping of the time lag and the consequent late publication of results besides the irksome internal assessment have been cited as the reasons for the abolition of the semester system. The semester system is to be continued, however, with very great reluctance in the engineering and technology faculties in line with sister technological institutions.

Delhi's special concession to sportsmen

Delhi University has evolved certain guidelines for colleges for giving concessions while admitting candidates claiming distinction in sports. But not more than 5% of the total number of seats separately in honours and pass courses of first year of the undergraduate courses can be given through concessions to sportsmen and others excelling in co-curricular activities. These admissions are to be finalized by colleges on the recommendation of a committee consisting of the college principals, the directors of physical education and some students and teachers of the college associated with sports. The candidates seeking such concessions will be screened through interviews and an actual trial on the field. The colleges have been asked to maintain a proper and full record of candidates admitted on the basis of excellence in sports and they have been asked to notify the dates for admissions of such candidates and also display on their notice boards the merits of such candidates after selection. The university is also streamlining procedures as every year a large number of candidates are admitted to various courses through concessions on the basis of false claims of merit in sports. Those claiming these concessions should have represented India in any event or game in the last three years, he should have secured first, second or third position in any event or game at the junior national level tournament in the last three years, secured one of the top three positions in national schools' games or at the All India Public Schools' games in this order of preference. The candidate can also claim concessions if he had represented a State meet whose performance has got one of the first three positions, or has secured a position in the State school championship, or has secured a position in zonal State level school games in the last three years.

Delhi Varsity concession for the handicapped

Physically handicapped candidates seeking admission to variour courses in Delhi University are to be given weightage up to 10% additional marks. This would be done for admissions to all courses except those where the University holds its own entrance competitive examination. Dr A.S. Kukla, Dean, Students' Welfare, said in Delhi that the physically handicapped candidates, including the blind, will be first registered by the faculty, department or college concerned and their applications would be sent by the concerned department or college of the Registrar. A medical board would then examine the candidates to determine which course they were fit to take. The board would also recommend the extent of weightage to be given to the candidates depending on the nature of the handicap. After the board's recommendation, the applications would be sent back to the concerned faculty, department or college by the Registrar's office for inclusion in the merit list for admissions. As far as possible an effort would be made to finalize such cases within three weeks of receiving the applications.

Madras maintains college intake

The Madras University has to meet the rush for seats in its affiliated colleges and will have the same intake this academic year as for last year. The university has also sanctioned additional seats in certain courses on the colleges making a request for the same. In addition, some institutions have been allowed to start evening colleges to meet the extraordinary demand for admission. The university is also registering candidates with the Institute of correspondence courses for the various post-graduate courses from this academic session. Post-graduate courses have been started in History. Economics, Tamil and English. Enrolment for MCom would also be done by correspondence.

UGC recommends population education

The University Grants Commission has recommended the introduction of population education as one of the foundation courses in universities and colleges under the new pattern of education. It has also been suggested to these institutions to set up population education clubs. The Commission has suggested that universities and colleges should organise short-term courses and extension work on population education as part of the continuing education programme. These programmes could be organised both for students as well as the community. It also wanted that population education should be integrated with teacher education programmes.

Two terms for varsity members now

The Governor of Tamil Nadu has issued an ordinance amending the Madurai-Kamaraj University Act to provide for a three-year term for the Senate, Syndicate and the Academic Council members. They will now be eligible for re-election or renomination for one more term of three years. It had been experienced that the same persons got re-elected again and again. Continuance of the same persons for a long period led to the creation of vested interests. The Government has therefore taken a decision that members of the various university bodies under the Education Department will hold office for a three-year period and be eligible for re-election or renomination for not more than another three years.

Job-oriented subjects included in Kurukshetra colleges

Most of the colleges affiliated to Kurukshetra University have decided to introduce job-oriented subjects in their curricula from the current academic session. A decision to this effect was taken by the Principals of twentyfive colleges. The students under this scheme would be required to offer two of the existing subjects along with one of the job-oriented subjects such as commercial art, marketing, rural banking, food preservation, electronics and industrial chemistry.

Mr. M. Kuttappan, Vice-Chancellor of the university, while addressing the meeting appreciated the move of the colleges. A meeting of the Board of Studies represented by the college concerned and experts from various industries has also been convened to finalise the syllabi for these subjects.

Open schools from August

The Central Board of Secondary Education has prepared a plan for thousands of school drop-outs, working adults and housewives to have another chance to improve their educational prospects. It is proposed to launch open school from the current academic year. Such schools will enable anyone above 14 years of age. and has had primary education, appear for the class X examination. The open schools, which will offer correspondence courses, will be run by the Central Board of Secondary Education.

The course, however, would initially offer lessons in only English and Hindi, to the entire exclusion of the South Indian belt and the north-eastern region. The open school, essentially a non-formal system of education, is designed to facilitate learners' entry spurning traditional constraints such as considerations of academic requirements, age, time, place and attendance. The scheme of studies is prepared with the facts that the open school students will not get face-to-face teaching and that they may also not be whole time students. The open school will enable the students to take up jobs while keeping open the option to join the university.

The open school will begin in August this year with an expected enrolment of 5,000. The financial allocation for the open school in 1980-81 had been Rs. 17 lakhs and the Ministry of Education is the controlling authority. The open school will normally admit learners who have passed class VIII but for those who have not passed class VIII, bridgelessons will be provided. It will also offer vocational and technical courses. The students will be given self-instructional lessons in five subjects of their choice. The board will conduct a separate examination for open schools which will be equivalent to that conducted by the CBSE for regular students. The students will have the facility of compartmental examination. A student will be required to pay Rs. 25 a subject as tution fee subject to a maximum of Rs. 125.

Linguistics course for tribal research officers

The Central Institute of Indian Languages (CIIL) in Mysore has started a course in basic linguistics for the benefit of officers of tribal research units in some States. These units are involved in research on tribal languages. The officers connected with the research work had felt the need for linguistic training. CIIL started the course following requests for it from some States and Union Territories.

The course which started last-month is being attended by the officers of Tribal Research Cells in Arunachal Pradesh, Tripura, Sikkim, Jammu and Kashmir and Orissa. The Institute is also engaged in the analysis and development of tribal languages.

Andhra to have Fine Arts University

The Chief Minister of Andhra Pradesh said in Hyderabad that the Government would be establishing Lalit Kala University in the state to promote fine arts to reach their prestine glory. He made this announcement while inaugurating the three-day birthday celebrations of Dr. M. Balamuralikrishna, the noted musician. The Minister sought the cooperation of eminent artists and musicians in setting up the fine arts university, the first of its kind in the country.

No separate UGC for south

Mr. S. B. Chavan said in Hyderabad that the Central Government was not considering any proposal for setting up a University Grants Commission for southern States. The Union Minister expressed himself against regional languages being media of instruction at the university level. He, however, favoured link language at the university level as medium of instruction and added that so long as we don't have substitute for English, English will continue to be medium of instruction. He said Hindi and Urdu stand good chance for being link languages. But they have not developed to attain the status of link language as yet.

USICs to help universities

The University Grants Commission has set up 51 centres for maintenance and servicing of sophisticated equipment acquired by the universities. These Universities Services and Instrumentation Centres will also offer courses and training programmes in instrumentation besides encouraging research, design and development in instrumentation. The programme initiated in 1976 also aims at pooling together costly sophisticated equipment so that various departments can use them as a common facility. In addition to USICs, the UGC has also assisted in the establishment of two regional instrumentation centres—one at the Bombay University and the other at the Indian Institute of Science, Bangalore. The Commission has suggested that instead of setting up new regional centres, in future, some of the present USIC's can be upgraded. The UGC has recently agreed to continue providing recurring assistance to the USICs upto the end of March 1985. But it would like this liability to be taken over thereafter by the State Government or the university concerned.

Faizabad organises sport meets

Avadh University had a series of Inter collegiate meet in different games and sports in its colleges spread over the districts of Faizabad, Sultanpur, Gonda, Pratapgarh, Barabanki and Bahraich. A prize distribution function was also held in the University campus under the chairmanship of Dr. A. P. Mehrotra, Vice-Chancellor. Function was attended by the principals, players, games supervisors and distinguished guests of the region. Trophies, colours, prizes and certificates were awarded to the winners and runners up of college team and the captain & members of various University teams. He declared that the university will soon have its own stadium, a swimming pool and a sports hostel as the first part of the Sports complex. Dr. L. A. Singh and Sri Rameshwar Pathak, President and Secretary of the University Sports Council respectively applauded the proposals of the University to establish the Faculty of Sports in near future.

News from Agril. Varsities

PM inaugurates Birsa University at Ranchi

The Prime Minister, Mrs. Indira Gandhi, inaugurated the Birsa Agriculture University at Ranchi. She said the establishment of this university would kindle the light of new scientific knowledge for the people of Chotanagpur. She called upon the tribal youths to give up the habit of launching agitation and meet new challenges by increasing the agricultural production.

Birsa Agriculture University, the long-cherished demand of the people of the region has been set up with a view to meeting the challenges of rural youths of tribal belt. Before inaugurating the university, the Prime Minister pressed a button which unfolded the statute of Birsa Bhagwan. A plaque indicating the primary features of the university was erected thereby in the maidan of Ranchi Veterinary College. She expressed happiness in inaugurating the university which has been named after Birsa Bhagwan, the great revolutionary who fought bravely for country's independence. She said that she had special regard for the tribal region not for its economic backwardness or mineral wealth but for the tribal culture and tradition. She asked Adivasis to preserve the beauty of their culture and exhorted them to acquire new values and scientific knowledge while keeping intact their ecology, tradition and culture.

Welcoming the Prime Minister, Dr. A. R. Kidwai, Governor of Bihar, said that this university was different from other agricultural universities. Forestry has been introduced as a scientific discipline which was not taught as such in any other university as a separate subject. He expressed his gratitude to the Prime Minister for the establishment of this agricultural university at Ranchi. He said that this was done by departing from government's policy that there should not be more than one agricultural university in a particular State.

PAU organises genetics summer school

Mr. I.C. Puri, Vice-Chancellor of the Punjab Agricultural University said in Ludhiana that while knowledge of science doubled every ten years and that of the subject of Biology doubled only in 15 years, in the field of genetics it doubled every two years. With such rapid advances, he said, what seemed fantasies in the past had now turned into realities of today and a hope for the future. Mr. Puri was inaugurating a one-month summer institute on 'Recent Advances in Genetics and Unconventional Techniques in Crop Improvement' at the Punjab Agricultural University. The Institute which is being organised by the Department of Genetics of of the PAU in collaboration with the Indian Council of Agricultural Research is being attended by 25 participants with one participant from each State and 7 from central research institutes. The research findings of the Genetics Department had laid foundations for considerable development in agriculture particularly in improvement of crops like wheat, maize, millets, pulses, oilseeds and fodders. It had also evolved new Napier Bajra hybrids and seasonal forage types.

Dr. A.S. Atwal, Dean, Postgraduate Studies at PAU said that while the research being done at the traditional universities was of fundamental value, the research being conducted at the agricultural university was of applied nature and greatly helped in solving the farmers' problems.

Swaminathan emphasises productivity in farm research

Mr. R.V. Swaminathan, Union Minister of State for Agriculture stressed the need for giving priority to research to boost production of maize, sorghum and millets. He was inaugurating the fifth training course on maize, sorghum and millets for Africa and the near East, organised by the UN Food and Agriculture organisation and the Swedish International Development Agency. He said an issue of major concern for Indian agricultural research in the next ten years would be to increase the productivity and production of these crops. Maize, sorghum and millets jointly occupied the third position in terms of total food production. This also constituted an important source of nutrition for mankind.

Indian scientists had evolved sorghum hybrids as also the hybrids of millet and maize which had a high yield potential. The problem was not one of generating high yielding varieties. The more important was to ensure that these high yielding varieties did well under farmers' conditions.

The new management techniques for farmers in the drylands needed greater attention for this purpose. There were other problems to be tackled like creation of an institutional framework to provide agro-services and evolution of more sophisticated technologies of biological nitrogen fixation and techniques of integrated pest management. These technologies called for a great deal of fresh effort on the part of the scientists.

USSR delegation at PAU

A two-member Soviet delegation of Livestock Feeds Experts, Dr. A. Kluochkouski, Deputy Chief, Department of Feeding Products, and Dr. G. Talanov, Deputy Director, All Union Research Institute of Veterinary Sanitation discussed with the scientists of the Punjab Agricultural University, the possibilities of exporting wealthy groundnut cake. They were worried about the presence of poisonous substance callid aflatoxin which is produced during a fungal attack on groundnut when stored in dump conditions.

The delegation held discussions with Dr. J.S. Chohan, Joint Director, Plant Diseases Clinics and Dr I.S. Bhatia, Professor of Chemistry and Biochemistry both of whom have done research on aflatoxin problems of groundnut in the field and during storage. They also talked to Dr B.S. Paul, Head, Department of Pharamacology and Dr Balwant Singh, Head, Department of Veterinary Pathology on the toxicological and pathological aspects of aflatoxin.

Punjab sets up panel to boost-farm output

The Punjab Government has constituted a 13-member committee of officers to promote agricultural production in the State. The committee will review from time to time arrangements in connection with agricultural production and approve, adjustment of essential inputs for agriculture among various sectors under the general guidelines to be laid down by the State Agricultural Production Committee. It will monitor the course of crop growth in relation to weather and step up efforts in the field of water conservation, minor irrigation and efficient use of water so as to minimise damage to crops. The committee will also endeavour to ensure the timely supply to farmers of inputs particularly credit, seeds, fertilisers, diesel, power and pesticides.

PL-480 projects at PAU

A high ranking officer of the United States Department of Agriculture, Dr. S.S. Stone, visited the Punjab Agricultural University for two days to discuss the implementation of two projects of University from PL-480 funds. One, a Rs. 10 lakh project, is called 'Efficient Use of Solar Energy for Crop Production'. Experiments in wheat have shown that if the sowing lines face all the four directions instead of two directions which they do now yield can increase from 15 to 20 per cent because the plants get more light. This bidirectional system of sowing also helps in suppression of diseases and weeds. Work will be carried out on other crops also by Dr G.S. Dhillon who is the principal investigator in the scheme. The other project relates to the study of a type of insects which live on harmful insects like leafhoppers and thus help in their biological control. Under the present scheme an intensive survey of a useful type called pipunculids would be undertaken to find out the number of prevalent species in India. According to the Chief Investigator. Dr. V.C. Kapoor, ways will be found out for their rapid propagation so that these can be utilised as agents for control of the insect pests. Control of insects through other insects is preferred over control through chemicals because it is more economical, permanent and free from hazards.

Dr. Stone who is the Director of the Far Eastern Regional Research Office of the International Research Division of USA held discussions with Dr S.S. Johl, Director of Research at PAU and several other scientists.

IARI develops high-yielding mango variety

After about a decade and a half of experimentation, horticultural scientists at the Indian Agricultural Research Institute, New Delhi, have come up with some new varieties of mango one of which, a dwarf hybrid named Amrapali, bids fair to revolutionise the production of this fruit in the country. Amrapali gives an annual per hectare yield of 16 tonnes of highly delicious fruits with fibre-free pulp and thin stones. The average per hectare annual yield of traditional varieties of mango in India is 8.7 tonnes. Dr.H.K. Jain, Director, IARI, said at the Mango Field Day celebrations at the Institute's orchard that the new dwarf varieties had been evolved so that the orchards might have 1,600 plants per hectare, compared to only 100 of the traditional plants. These varieties yield fruit every year, unlike the traditional ones which fruited in alternate years. The average yield of such dwraf trees was 16 tonnes a hectare compared to 8.21 tonnes a hectare of the traditional types. The philosophy behind developing the dwarf varieties, Dr. Jain said, was that sunlight and nutrients fed to mango plants should produce more fruits than vegetation and wood. A mango tree was not primarily meant to be a timber producing tree, That was why efforts were made to develop dwarfs, which converted the solar energy and nuirients more into fruits than into vegetative matter. This explained the short heights of the dwarf varieties. Besides, it was convenient to manage small trees, such as for spraying insecticides. These dwarfs, he said, would fit into the future pattern of high density orchards aimed at raising mango production steeply.

Dr. R.N. Singh, Dr. P.K. Majumdar and Dr. D.K. Sharma, the scientists who have worked on evolving the dwarf varieties for 20 years, said the new plants started giving fruits in four to six years, compared to 15 to 16 years for the traditional plants.

New promotion policy for PAU teachers

The Board of Management of the Punjab Agricultural University at its meeting held recently approved the proposal of the Vice-Chancellor, for a new promotion policy called Personal Merit Promotion Policy. Under this policy a faculty member who has done outstanding work will be promoted to the next higher post after ten years of service even by upgrading the post he is holding. This period of ten years is also subject to review by the Board. The assessment committee will consist of eminent scientists from within and outside the University. This policy will apply to Assistant Professor who will be made Associate Professors and to Associate Professors who will be made Professors. For non-Ph.D's the period of service during which they did not have the degree will be reduced by one-third for computing their ten years of minimum service. Even non-Ph.D's can be promoted if they are above 50 years of age and have put in 15 years of service on their present post. Only those persons will be appointed Professors Emeritus from within and outside the University who have made an outstanding contribution to their subject.

Seminar on rural employment held at PAU

Dr. S.S. Johl, Director of Research of the Punjab Agricultural University said in Ludhiana that although India had been making rapid strides in the sphere of economic development since Independence, the proportion of people below the poverty line had actually been increasing rather than showing any tendency to decline. He further said that this could be due to rapid growth in population cutting sharply the rate of growth and the continuous concentration in asset distribution which resulted in skewed distribution of income. Dr. Johl further said that the problem of poverty in the rural areas was acute and serious and that agricultural labourers, marginal farmers and rural artisans formed the focus of poverty. Dr. Johl was inaugurating a two-day seminar on "Structure of Employment and Wages in Rural India" organised by the Department of Economics and Sociology of the University at Ludhiana. The seminar has been sponsored by the Khadi and Village Industries Commission and the Indian Council of Social Sciences Research.

Dr. Johl said that with the rapid adoption of new farm technology and mechanization the job opportunities had considerably increased. Dr. Johl suggested that to generate more jobs for the rural unemployed persons and to reduce mounting pressure on agriculture, more incentives and facilities should be provided to promote dairy farming, poultry and piggery. There was also an urgent need to diversify the economy in favour of the industrial sector which was primarily agro-based and utilized agricultural wastes.

Science & Technology

Indian oceanography makes rapid strides

Oceanography in India is over a century old, having originated in 1871 when an officer of the Indian Museum, Dr. J. Wood Mason, was sent to the Andamans to study the flora and fauna of the region. Dr. Mason was, perhaps, the first person to carry out biological work in the deep waters of the sea off the Andamans on board SS "Undaunted", according to a study by the National Institute of Oceanography (NIO) at Dona Paula near Panaji. Immediately afterwards, the Marine Survey of India (MSI) was set up in 1872, about the same time that the British survey vessel HMSV "Challenger" sailed on its famous round-the-world cruises.

Stimulated by the great success achieved by the "Challanger", the Royal Asiatic Society of Bengal pursuaded the Indian Government to create a post of surgeon-naturalist to carry out similar work in Indian waters. Thus, in 1875, Dr. J. Armstrong was appointed India's first surgeon-naturalist. Six years later, a 580-tonne marine survey vessel, Rims "Investigator One", was commissioned by MSI, formally launching an era of oceanography studies in the country. These studies largely concentrated on biological collections, though observations of sea temperature and seabed deposits were also made occasionally.

After the turn of the century, the 1,078-tonne "Investigator Two" replaced the "Investigator One" to speed up operations, the study says. The advent of World War I brought work to a temporary standstill from 1914 to 1921, before it was finally given up in 1926. The surveys carried out in the Arabian Sea, the Bay of Bengal and the waters off the Andamans and the Laccadives—now Lakshadweep—threw up a wealth of knowledge of the marine animal and plant life in these seas. Later, the Dana Expedition from 1928 to 1930, the John Murray Expedition of 1933 and the Galathea Expedition from 1950 to 1952 also revealed many interesting features of the Indian Ocean.

With independence in 1947 the Central Marine Fisheries Institute was established to carry out research related to fish and fisheries. In the years that followed, the Indian Navy established a naval oceanographic laboratory in Cochin for research on defence-oriented problems. The land-locked nature of the Indian Ocean on its northern boundary and the biannual reversal of the direction of the winds known as the "monsoons" are the unique characteristics of this ocean, the study points out.

These considerations led to the development of a multinational project called the International Indian Ocean Expedition (IICE), co-sponsored by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and the Inter-Governmental Oceanography Commission (IOC). The Indian Ocean Biological Centre was established in Cochin in 1962 with the support of UNESCO-IOC for the study of zooplankton. The credit for most of the work done under IICE goes to Dr. N. K. Panikkar, who can be called the founder of modern oceanography in India The centre agreed to INCOR's proposal, and NIO came into existence on January 1, 1966 as one of the national laboratories under the Council of Scientific and Industrial Research (CSIR). The greatest impact on Indian oceanography, according to the study, came with the commissioning of NIO's first oceanographic research vessel, the "Gaveshani", which has already completed over 80 cruises. The "Gaveshani" had, in January, made India the first Third World country to collect precious polymetallic modules from the sea-bed and earned Prime Minister Indira Gandhi's congratulations for NIO scientists.

I.I.T. develops solar cooker

A compact box type solar cooker has been designed and developed by the Centre for Rural Development and Appropriate Technology at Indian Institute of Technology, Delhi for cooking food using Sun energy during day time on most sunny days. This solar cooker will be very useful for rural applications. The maximum temperature attained inside the cooker ranges from 115° — 135°C on most sunny days and foods such as rice, ricepulao, vegetable pulao, meat/mutton pulao, cereals and pulses, vegetables (almost all), milk pre-parations (such as dalia. kheer, sinmai, custard), cake (both vegetarian and egg cake). sambhar, iddli, etc. have been cooked successfully. Cooking time varies from 55 minutes—2.25 hours depending upon the type and quantity of the food-stuffs being cooked.

Solar water heater designed

The Centre of Energy Studies at the Indian Institute of Technology, Delhi has developed a Solar Water Heater which can heat about 40 litres of water from a temperatnre of 20°C to 50°C in the afternoons of winter seasons at Delhi. The Heater can be used atleast for three seasons and can be put to use in no time. It is all plastic and portable and looks like a plastic water pillow. It can be put in open sun either on the roof or in open lawns and can be used both in urban and rural areas. It can also be connected in series with water pipeline where there is a pressure water line or can be filled with a funnel like arrangement in rural areas. The solar water heater costs only Rs 50 and its cost may further go down slightly if produced on mass scale.

Financing of Universities

(*Continued from page 383*)

and to take over the entire expenditure on the staff. This follows that the Universities actually are left with only about three years time for implementation of the Development Schemes, if not less. On account of the various formalities in the matter of appointments and construction of buildings some more time is consumed. From the point of view of result, there must be some way-out so that the Universities have at least four years period for implementation of the five-year Plan.

In order to avoid this, it is suggested that:

(1) The Development Schemes should be submitted by the Universities two years before the expiry of the current Plan period; or

(2) The University may submit schemes for 10 years in two parts so that after examining the schemes of the first part i.e. of one Five-Year Plan, the Commission may consider the second part of the Five-Year Plan, two years before the current Plan period is over. This will also help the Universities to have a 10 year Plan with greater perspectives and coordination. Of course, it should always be open to the Universities to suggest modifications on the basis of experience of experimentation of the earlier schemes.

In providing Development Grants to 'Developed' and 'Developing' Universities besides the question of quantum, to what extent—expansion should be permitted disregarding consolidation requires an in-depth study to provide clear guidelines so that expansion is within the manageable means.

Conclusion

Financing of Universities is wholly a matter of 'Approach' than merely an economic ground. During the second war, UK spent more on education and experimented more extensively on it with the result that the new educational system of England was born. This was the 'Approach' of the Government of England for Education. I would like to conclude with the following message of Sir Stafford Cripps to the University Quarterly.

> "The darkness of the economic outlook gives no ground for economy in the sphere of University grants. The Universities have a great contribution to make towards *natioral economic recovery.* We look to them to continue with unabated vigour the search for new knowledge and the education of increased numbers of young men and women for all classes of the community. For it is on the advances that we make in scientific knowledge and on the energy, initiative, directive capacity and courage of these young graduates that the economic future of the country will largely depend." ☐

Conferences, Seminars & Workshops

July-September, 1981

Date	Title	Venue	Sponsoring Body
1—2 July 1981	Public Relations for Financing Institutions	Delhi	National Productivity Council (NPC) New Delhi 110 003
6—7 July 1981	Inflation Accounting	Bangalore	N P C
6—10 July 1981	Vibration Control	Bombay	Indian Institute of Technology (IIT) Powai, Bombay 400 076
6—11 July 1981	General Management for Senior Executives	Delhi	N P C
6—10 July 1981	Production Management	Madras	N P C
6—11 July 1981	Pharmaceutical Marketing	Goa	N P C
11—20 July 1981	Operation of Reservoirs maintenance and safety of Dams	Vadodara	Gujarat Engineering Research Institute, Vadodara 390 007
13—17 July 1981	Fourth National Programme on Company Secretary as a Professional Administrator	Ooty	All India Management Association (AIMA) Institutional Area, New Delhi 110 003
13—17 July 1981	Human Relations	Madras	N P C
13—18 July 1981	Fuel Efficiency for Small-scale Industry	Calcutta	N P C
13—18 July 1981	International Conference on Thermodynamics and Kinetics of Metallurgical Processes	Bangalore	Indian Institute of Science Bangalore 560 012
13—25 July 1981	Management Accounting	New Delhi	Indian Institute of Public Administration (IIPA) Indraprastha Estate, New Delhi 110 002
14—16 July 1981	Lubrication for Oilmen	Ahmedabad	N P C
14—18 July 1981	Management of Small Scale Industries	Patna	P P C
14—20 July 1981	Productivity Orientation for Trade Union Officials	New Delhi	N P C
15—16 July 1981	Current Status of Centrally Acting Peptides	Lucknow	Central Drug Research Institute Lucknow 226 001
15—16 July 1981	Energy Conservation in Process Industry	New Delhi	N P C
15—18 July 1981	Condition Monitoring Techniques	Bangalore	N P C
16—18 July 1981	Diagnosing human behaviour in administration	New Delhi	I I P A
20—22 July 1981	Management of examinations for the Chairman and Secretaries of State Boards of Secondary Education	New Delhi	National Institute of Educational Planning and Administration, New Delhi 110 016
20—25 July 1981	Process Planning and Design of Cutting Tools	Poona	N P C
20—25 July 1981	Project Management	Bangalore	N P C
20—24 July 1981	Incoming Materials Management	Madras	N P C
20—24 July 1981	Tribology and Lubrication Management	Hyderabad	N P C
20—25 July 1981	Finance for non-finance executions	New Delhi	I I P A
20—25 July 1981	Top management seminar on technology	Hyderabad	Administrative Staff College of India (ASCI) Hyderabad 500 475
20—25 July 1981	Disaster Management	Hyderabad	A S C I
20—30 July 1981	Tribal Development Administration	New Delhi	I I P A
20 Jul—7 Aug '81	International course on Stratification due to thermal discharge with particular reference to estuaries, rivers and ponds	Pune	Central Water and Power Research Station, Pune 411 024
21—25 July 1981	Office Systems and Procedures	Calcutta	N P C
25—26 July 1981	Design for Fatigue and Fracture in Industry	Bombay	Indian Institute of Technology Powai, Bombay 400 076
27—29 July 1981	Productivity Orientation for Trade Union Officials	Madras	N P C
27—31 July 1981	Personnel Management	Visakhapatnam	N P C
27—31 July 1981	Finance for non-finance executives	New Delhi	Public Enterprises Centre for Continuing Education, 1-6 Community Centre, Basant Lok, Vasant Vihar, New Delhi 110 057
27 Jul—1 Aug '81	Management of Industrial Relations	Hyderabad	A S C I
27 Jul—4 Aug '81	Investment Planning and Project Evaluation	Hyderabad	A S C I
27 Jul—14 Aug '81	Management of Public Enterprises	New Delhi	I I P A
August 1981	Digital Circuit System	Ahmedabad	The Institution of Electronic and Telecommunication Engineers, Institutional Area, New Delhi 110 003
August 1981	National Workshop on Cerebral Palsy	Bombay	All India Institute of Physical Medicine and Rehabilitation, Haji Ali Park, Mahalaxmi, Bombay 400 034

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August 1981	Theatre Journalism Workshop	Bhopal	Indian Institute of Mass Communication, South Extension II New Delhi 110 049
1—2 Aug 1981	Melting Technology for Ferrous Foundries	Bombay	IIT, Bombay
1—5 Aug '81	Optical and E.S.R. Spectra of Transition Metals and Rare Earth Ions	Tirupati (A.P.)	Sri Venkateswara University, Tirupati 517 502
2—21 Aug 1981	Second orientation programme in Educational Planning and Administration for Senior School Administrators	New Delhi	National Institute of Educational Planning & Administration, New Delhi 110 016
3—6 Aug 1981	Instrumentation and Automatic Control	Calcutta	NPC
3—7 Aug 1981	Inventry Management and Control	New Delhi	IIPA
3—8 Aug 1981	Finance for non-financial executives	Srinagar	NPC
5—7 Aug 1981	Restructuring Education for Librarianship	Tirupati	Sri Venkateswara University
6—7 Aug 1981	Recent Advances in energy management	Cochin	NPC
6—8 Aug 1981	Productivity Agreements	Bombay	NPC
7—9 Aug 1981	Indian Society of Soil Science: 46th Annual Convention 1981	New Delhi	Indian Agricultural Research Institute, New Delhi 110 012
8—9 Aug 1981	Industrial Lubrication Tribology and Rehability	Bombay	IIT, Bombay
10—11 Aug 1981	Rice Milling: By—products and their Utilization	Delhi	NPC
10—14 Aug 1981	Financial Management for finance officers of Central	New Delhi	National Institute of Educational Planning and Administration
10—14 Aug 1981	Employee Appraisal Counseling	Udaipur	NPC
10—15 Aug 1981	Management of R&D Systems	Hyderabad	ASCI
11—13 Aug 1981	Productivity in Spinning	Ahmedabad	NPC
12—14 Aug 1981	Worker and Productivity Theme: Productivity Bargaining	Bangalore	NPC
17—21 Aug 1981	Basic Accounting for Small Scale Industry	Madras	NPC
17—21 Aug 1981	Management of Training	Madras	NPC
17—21 Aug 1981	Managerial Effectiveness	New Delhi	Public Enterprises Centre for Continuing Education
17—22 Aug 1981	Management Information System	Bombay	NPC
17—22 Aug 1981	Production Planning and Control	Bangalore	NPC
17—25 Aug 1981	Personnel Policies and Practice	New Delhi	IIPA
18—22 Aug 1981	Quality Engineering and Management	Calcutta	NPC
19 Aug—5 Sep '81	Budgeting and Financial Control	New Delhi	IIPA
20—21 Aug 1981	Electrical Energy Utilization	Madras	NPC
20—21 Aug 1981	National Seminar on Corporate Performance Appraisal	Bombay	AIMA
22—23 Aug 1981	Space Electronics and Communication	Trivandrum	The Institution of Electronic and Telecommunication Engineers
22—23 Aug 1981	Industrial Hydraulics and Hydraulic Controls	Bombay	IIT, Bombay
24—28 Aug 1981	Performance Budgeting	Madras	NPC
24—28 Aug 1981	Third National Seminar on Manufacturing Management in Textiles	Bombay	AIMA
24—29 Aug 1981	Training methods and skills	Hyderabad	ASCI
24—29 Hug 1981	Pollution Control	Bombay	NPC
24 Aug—5 Sept '81	Marketing Management	Hyderabad	ASCI
24 Aug—11 Sept '81	Systems Management	New Delhi	IIPA
26 Aug—1 Sept '81	Materials Management	Bangalore	NPC
27 August 1981	Evaluation of Precalcinator Technology	New Delhi	Cement Research Institute of India, M-10 N.D.S.C. Part II Ring Road, New Delhi 110 049
29—30 Aug 1981	Process Measurement and Data Logging	Bombay	IIT, Bombay
31 Aug—4 Sept '81	The Challenge of Technology—Implications for social Welfare and Development	Bombay	International Council of Social Welfare, Regional Office : 17 Dr. DN Road, Bombay 400 001
31 Aug—12 Sept '81	A Course on Applied Numerical Techniques for Engineers with Fortran Case Studies	Bangalore	Indian Institute of Science
September 1981	Silver Jubilee Seminar on a pragmatic plan for action for the rehabilitation of the handicapped coinciding with the national five year plan upto 2000AD	Bombay	All India Institute of Physical Medicine and Rehabilitation
September 1981	National Symposium on Corneal Diseases	New Delhi	Dr Rajendra Prasad Centre for Opthalmic Sciences, New Delhi
September 1981	Rural Communication Workshop for Field Publicity Officers	Kerala	Indian Institute of Mass Communication, N.D.S.E. II New Delhi 110 049
1—2 Sept 1981	Second National Seminar on the Role of Nominee Directors on Corporate Boards	Hyderabad	AIMA
1—5 Sept 1981	Line Managers: Interface with personnel	New Delhi	Public Enterprises Centre for Continuing Education

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1—11 Sept 1981	Administrative Law	New Delhi	I I P A
3—4 Sept 1981	Productivity Agreements	Madras	N P C
3—4 Sept 1981	Transactional Analysis	Madras	N P C
3—4 Sept 1981	Transactional Analysis	Cochin	N P C
4 September '81	Use of Water fluids in Hydraulic Systems	Delhi	N P C
5—6 Sept 1981	Analysis of Plane Multistorey Frames with Uniform and Haunched Members	Bombay	I I T, Bombay
7—10 Sept 1981	Finance for Non-financial Executives	Bangalore	N P C
7—11 Sept 1981	Effective Office Management	Patna	N P C
7—11 Sept 1981	Utility Management	Calcutta	N P C
7—12 Sept 1981	Advanced Maintenance Management	Delhi	N P C
7—12 Sept 1981	Leadership and Organisation Development	Hyderabad	A S C I
7—12 Sept 1981	Financial Control and Reporting Systems	Hyderabad	A S C I
7—17 Sept 1981	Valuation and assessment for property taxes	New Delhi	I I P A
7—18 Sept 1981	Workshop on priority sector financing for officers of State Bank of India	Pantnagar	GB Pant University of Agriculture and Technology, Pantnagar, Distt. Nainital (U.P).
7—19 Sept 1981	Organisation and Management	New Delhi	I I P A
7—26 Sept 1981	First Orientation Programme in Educational Planning and Administration for College Principals	New Delhi	National Institute of Educational Planning and Administration
9—12 Sept 1981	Marketing of Handlooms and Handicrafts	Darjeeling	N P C
12—13 Sept 1981	Strategy and Technology for Water Quality Management in India	Bombay	I I T, Bombay
12—15 Sept 1981	Managing Small Units	Jabalpur	N P C
14—15 Sept 1981	Organisational Redesign	Bombay	N P C
14—23 Sept 1981	Project Appraisal (Social Cost-benefit analysis)	New Delhi	I I P A
14—17 Sept 1981	Seminar on Non-monetary Inputs to improve the quality of education	New Delhi	National Institute of Educational Planning and Administration
14—17 Sept 1981	Operation and Maintenance of Industrial Boilers	Bangalore	N P C
14—18 Sept 1981	Project Management	Madras	N P C
14—19 Sept 1981	Corporate Planning	Hyderabad	A S C I
14—25 Sept 1981	Programme on Advancement of Management and Productivity	Srinagar	N P C
14—26 Sept 1981	Sound Transmission in Coastal Seas	Bangalore	Indian Institute of Science
14—30 Sept 1981	Nursing Administration	New Delhi	National Institute of Health and Family Planning, Munirka, New Delhi
15—16 Sept 1981	Life Cycle Costing	Delhi	N P C
15—19 Sept 1981	Maintenance Management and Engineering	Ahmedabad	N P C
15—19 Sept 1981	Finance Non-financial Executives	Calcutta	N P C
15—19 Sept 1981	Electronic Data Processing for Managers	Delhi	N P C
16—29 Aug 1981	Workshop on agricultural financing for Rural Development Officer's of State Bank of India	Pantnagar	GB Pant University of Agriculture and Technology, Pantnagar, Distt. Nainital (U.P.)
19 September '81	Productivity in Public Administration	Bhopal	N P C
19—20 Sept 1981	Quality Management	Bombay	I I T, Bombay
21 Sept—30 Oct '81	Project Management	Hyderabad	A S C I
26—27 Sept 1981	Industrial Pneumatics and Pneumatic Controls	Bombay	I I T, Bombay
21—23 Sept 1981	Industrial Water Treatment	Madras	N P C
21—23 Sept 1981	Effective Management of Training	Udaipur	N P C
21—23 Sept 1981	Materials Technology for Product Design and Improvement	Delhi	N P C
21—25 Sept 1981	Materials Management	Visakhapatnam	N P C
21—25 Sept 1981	Participative Management	Poona	N P C
21—25 Sept 1981	Improving Productivity at the Unit Level	Ooty	N P C
21—26 Sept 1981	Maintenance Engineering and Management	Bangalore	N P C
21—26 Sept 1981	Project Formulation and Appraisal	Ooty	N P C
21 Sept—1 Oct '81	Management Information Systems	New Delhi	I I P A
22—23 Sept 1981	Group Discussion on 'Ammoniacal Nitrogen Effluent in Fertiliser Industry'	Kalol (Gujarat)	The Fertiliser Association of India, New Delhi 110 067
22—26 Sept 1981	Programme for Boiler operators	Patna	N P C
23—24 Sept 1981	Water Treatment practices in Modern Thermal Power Stations	Delhi	N P C
28—30 Sept 1981	Motivation and Productivity	Madras	N P C
30 September '81	Coal-fired Reheating Furnaces	Calcutta	N P C

Subject Index

Date	Title	Venue	Sponsoring Body
Agricultural Sciences			
7–9 Aug 1981	Indian Society of soil science: 46th annual convention 1981	New Delhi	Indian Agricultural Research Institute, New Delhi 110 012
10–11 Aug 1981	Rice milling by-products and their utilization	Delhi	N P C
16–29 Aug 1981	Workshop on agricultural financing for rural development officers of State Bank of India	Pantnagar	GB Pant Univ of Agriculture and Technology, Pantnagar, Distt. Nainital
Civil Engineering			
11–20 Jul 1981	Operation of reservoirs maintenance and safety of dams	Vadodara	Gujarat Engg Res Institute, Vadodara 390 007
5–6 Sep 1981	Analysis of plane multistorey frames with uniform and haunched members	Bombay	IIT, Bombay
Computer Sciences			
31 Aug–12 Sep 1981	A course of Applied Numerical techniques for engineers with Fortran case studies	Bangalore	Indian Institute of Science
15–19 Sep 1981	Electronic data processing for managers	Delhi	N P C
Education			
20–22 Jul 1981	Management of examinations for the chairman and secretaries of state boards of secondary education	New Delhi	National Inst of Educational Planning and Administration, New Delhi 110 016
2–21 Aug 1981	Second orientation programme in educational planning and administration for senior school administrators	New Delhi	,, ,, ,,
7–26 Sep 1981	First orientation programme in educational planning and administration for college principals.	New Delhi	,, ,, ,,
14–17 Sep 1981	Seminar on Non-monetary inputs to improve the quality of education	New Delhi	,, ,, ,,
Electrical and Electronics Engineering			
August 1981	Digital circuit system	Ahmedabad	The Institution of Electronics and Telecommunication Engineers, Institutional Area, New Delhi
20–21 Aug 1981	Electrical energy utilization	Madras	N P C
22–23 Aug 1981	Space electronics and communication	Trivandrum	Institution of Electronics and Telecommunication Engineers
Financial Management			
6–7 Jul 1981	Inflation accounting	Bangalore	N P C
13–25 Jul 1981	Management accounting	New Delhi	Indian Inst of Public Administration (IIPA) Indraprastha Estate, New Delhi 110 002
20–25 Jul 1981	Finance for non-finance executions	New Delhi	I I P A
27 Jul–8 Aug '81	Investment planning and project evaluation	Hyderabad	A S C I
17–21 Aug 1981	Basic accounting for small scale industry	Madras	N P C
19 Aug–5 Sep '81	Budgeting and financial control	New Delhi	I I P A
7–18 Sep 1981	Workshop on priority sector financing for officers of State Bank of India	Pantnagar	GB Pant Univ of Agriculture and Technology, Pantnagar
27–31 Jul 1981	Finance for non-finance executives	New Delhi	Public Enterprises Centre for Continuing Education, New Delhi
3–8 Aug 1981	Finance for non-financial executives	Srinagar	N P C
10–14 Aug 1981	Financial management for finance officers of Central Universities and IIT's	New Delhi	National Inst of Educational Planning and Administration
24–28 Aug 1981	Performance budgeting	Madras	N P C
7–10 Sep 1981	Finance for non-financial executives	Bangalore	N P C
7–12 Sep 1981	Financial control and reporting systems	Hyderabad	A S C I
15–19 Sep 1981	Finance for non-financial executives	Calcutta	N P C
Management			
6–11 Jul 1981	General management for senior executives	Delhi	N P C
13–17 Jul 1981	Fourth National Programme on company secretary as a professional administrator	Ooty	All India Management Association New Delhi 110 003
14–18 Jul 1981	Management of small scale industries	Patna	N P C
27 Jul–14 Aug '81	Management of public enterprises	New Delhi	I I P A
10–15 Aug 1981	Management of R & D System	Hyderabad	A S C I
17–21 Aug 1981	Managerial effectiveness	New Delhi	Public Enterprises Centre for Continuing Education
17–22 Aug 1981	Management information system	Bombay	N P C
20–21 Aug 1981	National seminar on corporate performance appraisal	Bombay	A I M A
24 Aug 11 Sep '81	Systems management	New Delhi	I I P A
1–2 Sep 1981	Second national seminar on the role of nominee directors on corporate boards	Hyderabad	A I M A
7–11 Sep 1981	Utility management	Calcutta	N P C

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7—19 Sep 1981	Organisation as management	New Delhi	I I P A
12—15 Sep 1981	Managing small units	Jabalpur	N P C
14—15 Sep 1981	Organisational redesign	Bombay	N P C
14—19 Sep 1981	Corporate planning	Hyderabad	A S C I
14—25 Sep 1981	Programme on advancement of Management and productivity	Srinagar	N P C
21 Sep—1 Oct '81	Management information systems	I I P A	
Heat Engineering			
20 Jul—7 Aug '81	International course on stratification due to thermal discharge with particular reference to estuaries, rivers and ponds	Pune	Central Water and Power Research Station, Pune 411 024
23—24 Sep 1981	Water treatment practices in modern thermal power station	Delhi	N P C
30 Sep 1981	Coal fired reheating furnaces	Calcutta	N P C
Industry and Labour			
14—20 Jul 1981	Productivity orientation for trade union officials	New Delhi	N P C
27—29 Jul 1981	Productivity orientation for trade union officials	Madras	N P C
27 Jul—1 Aug '81	Management of industrial relations	Hyderabad	A S C I
6—18 Aug 1981	Productivity agreements	Bombay	N P C
10—14 Aug 1981	Employee appraisal counseling	Udaipur	N P C
2—14 Aug 1981	Worker and productivity theme: productivity bargaining	Bangalore	N P C
3—4 Sep 1981	Productivity agreements	Madras	N P C
21—25 Sep 1981	Participative management	Pune	N P C
Instrumentation Engineering			
15—18 Jul 1981	Condition monitoring techniques	Bangalore	N P C
3—6 Aug 1981	Instrumentation and automatic control	Calcutta	N P C
Law			
1—11 Sep 1981	Administrative law	New Delhi	I I P A
7—17 Sep 1981	Valuation and assessment for property taxes	New Delhi	I I P A
Library and Information Sciences			
5—7 Aug 1981	Restructuring education for librarianship	Tirupati	Sri Venkateswara University
Marketing Management			
6—11 Jul 1981	Pharmaceutical marketing	Goa	N P C
24 Aug—5 Sep '81	Marketing management	Hyderabad	A S C I
9—12 Sep 1981	Marketing of handlooms and handicrafts	Darjeeling	N P C
15—16 Sep 1981	Life cycle costing	Delhi	N P C
1—2 Jul 1981	Public relations for financing institutions	Delhi	National Productivity Council
Mass Communication			
Aug 1981	Theatre journalism workshop	Bhopal	Indian Inst of Mass Communication N.D.S.E. II, New Delhi 110 049
September 1981	Rural communication workshop for field publicity officers	Kerala	,, ,, ,,
Mechanical Engineering			
6—10 Jul 1981	Vibration control	Bombay	IIT, Bombay
14—16 Jul 1981	Lubrication for oilmen	Ahmedabad	N P C
20—25 Jul 1981	Process planning and design of cutting tools	Pune	N P C
20—24 Jul 1981	Tribology and lubrication management	Hyderabad	N P C
25—26 Jul 1981	Design for fatigue and fracture in industry	Bombay	Indian Inst of Technology, Bombay
8—9 Aug 1981	Industrial lubrication tribology and reliability	Bombay	I I T, Bombay
22—23 Aug 1981	Industrial hydraulics and hydraulic controls	Bombay	IIT, Bombay
29—30 Aug 1981	Process measurement and data logging	Bombay	IIT, Bombay
4 Sept 1981	Use of water fluids in hydraulic systems	Delhi	N P C
14—17 Sep 1981	Operation and maintenance of industrial boilers	Bangalore	N P C
26—27 Sep 1981	Industrial pneumatics and pneumatic controls	Bombay	IIT, Bombay
22—26 Sep 1981	Programme for boiler operators	Patna	N P C
Medicine and Public Health			
August 1981	National workshop on cerebral Palsy	Bombay	All India Inst of Physical Medicine and Rehabilitation, Haji Ali Park, Mahalaxmi, Bombay 400 034
September '81	Silver jubilee seminar on pragmatic plan for action for the rehabilitation of the handicapped coinciding with the national five year plan upto 2000 AD	Bombay	,, ,, ,,
September '81	National symposium on corneal diseases	New Delhi	Dr Rajendra Prasad Centre for Ophthalmic Sciences
14—30 Sep 1981	Nursing administration	New Delhi	National Inst of Health and Family Planning, Munirka, New Delhi
Metallurgy			
13—18 Jul 1981	International conference on thermodynamics and kinetics of metallurgical processes	Bangalore	Indian Inst of Science, Bangalore 560 012
1—2 Aug 1981	Melting technology for Ferrous foundries	Bombay	IIT, Bombay

1	2	3	6
Office Management			
21– 25 Jul 1981	Office systems and procedures	Calcutta	N P C
7– 11 Sep 1981	Effective office management	Patna	N P C
Personnel Management			
13– 17 Jul 1981	Human relations	Madras	N P C
14– 18 Jul 1981	Diagnosing human behaviour in administration	New Delhi	I I P A
27– 31 Jul 1981	Personnel management	Visakhapatnam	N P C
17– 21 Aug 1981	Management of training	Madras	N P C
17—29 Aug 1981	Personnel policies and practices	New Delhi	I I P A
24—29 Aug 1981	Training methods and skills	Hyderabad	A S C I
1—5 Sep 1981	Line managers: interface with personnel	New Delhi	Public Enterprises Centre for continuing education
21—23 Sep 1981	Effective management of training	Udaipur	N P C
3—4 Sep 1981	Transactional analysis	Madras	N P C
3– 5 Sep 1981	Transactional analysis	Cochin	N P C
7– 12 Sep 1981	Leadership and organisation development	Hyderabad	A S C I
28– 30 Sep 1981	Motivation and productivity	Madras	N P C
Production Management			
6– 10 Jul 1981	Production management	Madras	N P C
20—24 Jul 1981	Incoming materials management	Madras	N P C
3—7 Aug 1981	Inventory Management and controls	New Delhi	I I P A
11—13 Aug 1981	Productivity in spinning	Ahmedabad	N P C
17—22 Aug 1981	Production planning and control	Bangalore	N P C
26 Aug—1 Sep '81	Materials management	Bangalore	N P C
7– 12 Sep 1981	Advanced maintenance management	Delhi	N P C
15– 19 Sep 1981	Maintenance management and engineering	Ahmedabad	N P C
21—23 Sep 1981	Materials technology for product design and improvement	Delhi	N P C
21—25 Sep 1981	Materials Management	Visakhapatnam	N P C
21– 25 Sep 1981	Improving productivity at the unit level	Ooty	N P C
21—26 Sep 1981	Maintenance engineering and management	Bangalore	N P C
19—20 Sep 1981	Quality management	Bombay	IIT, Bombay
18—22 Aug 1981	Quality engineering and management	Calcutta	N P C
Project Management			
20—25 Jul 1981	Project management	Bangalore	N P C
14—18 Sep 1981	Project management	Madras	N P C
21 Sep– 3 Oct '81	Project management	Hyderabad	A S C I
21—26 Sep 1981	Project formulation and appraisal	Ooty	N P C
Public Administration			
20—30 Jul 1981	Tribal development administration	New Delhi	I I P A
19 Sept. 1981	Productivity in public administration	Bhopal	N P C
Science and Technology			
13—18 Jul 1981	Fuel efficiency for small scale industry	Calcutta	N P C
15—16 Jul 1981	Current status of centrally acting peptides	Lucknow	Central Drug and Res Institute, Lucknow 226 001
15—16 Jul 1981	Energy conservation in process industry	New Delhi	N P C
20– 25 Jul 1981	Top management seminar on technology	Hyderabad	A S C I
1– 5 Aug 1981	Optical and ESR spectra of transition metals and rare earth ions	Tirupati A.P.	Sri Venkateswara University Tirupati 517 502
6– 7 Aug 1981	Recent advances in energy management	Cochin	N P C
24– 28 Aug 1981	Third national seminar on manufacturing management in Textiles	Bombay	A I M A
24– 29 Aug 1981	Pollution control	Bombay	N P C
31 Aug—12 Sep '81	A course on space science technology and applications—an overview	Bangalore	Indian Institute of Science
14– 26 Sep 1981	Sound transmission in coastal seas	Bangalore	Indian Institute of Science,
22– 23 Sep 1981	Group discussion on Ammonical nitrogen effluent in fertiliser industry	Kalol (Gujarat)	Fertiliser Association of India New Delhi 110 067
27 August 1981	Evaluation of Precalcinator technology	New Delhi	Cement Res Institute of India M-10, NDSE-II, Ring Road, New Delhi
Social Work			
20– 25 Jul 1981	Disaster management	Hyderabad	A S C I
31 Aug– 4 Sep '81	The challenge of technology– Implications for social welfare and development	Bombay	International Council on Social Welfare, Regional Office, 17 Dr DN Road, Bombay 400 001
14– 23 Sep 1981	Project appraisal (social cost-benefit analysis)	New Delhi	I I P A
Water Management			
12– 13 Sep 1981	Strategy and technology for water quality management in India	Bombay	IIT, Bombay
21—23 Sep 1981	Industrial water treatment	Madras	N P C

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CLASSIFIED ADVERTISEMENTS

LALIT NARAYAN MITHILA UNIVERSITY

Kameshwarnagar, Darbhanga

Advertisement No. 2/81

WANTED

Applications in the prescribed form are invited from Indian citizens for appointment to the posts of University Professor in the following subjects, in the scale of pay of Rs. 1500-60-1800-100-2000-125-2500 under L.N. Mithila University Service, Darbhanga. The applications together with a fee of Rs. 10/- through crossed Indian Postal Order payable to the Registrar, L.N. Mithila University, Kameshwarnagar, Darbhanga should reach the undersigned on or before **31.7.1981**.

1. English—One post
   —Leave Vacancy
2. Economics—One post
   —Leave Vacancy
3. History—One post
   — Substantive
4. Geography—One post
   —Substantive
5. Sociology—One post
   —Substantive
6. Psychology—One post
   —Substantive
7. Philosophy—One post
   —Substantive
8. Urdu—One post
   —Substantive
9. Sanskrit—One post
   —Substantive
10. Physics—One post
    —Substantive
11. Chemistry—One post
    —Substantive

Application forms can be had from the office of the Registrar, L. N. Mithila University, Kameshwarnagar, Darbhanga on payment of Rs. 2/- through crossed Indian Postal Order. Candidates intending to receive forms by post are required to send a self addressed envelope (23 cm x 10 cm) with postage stamps worth Rs. 3.50 P. affixed to it with the words APPLICATION FORM FOR THE POST OF UNIVERSITY PROFESSOR" superscribed on it. Money order or cheque will not be accepted.

Qualifications

Teacher of repute possessing high academic qualifications, who has already distinguished himself in the subject concerned by his research and published works of high standard and who possesses a doctorate degree and has at least ten years Post Graduate teaching experience and also considerable experience of successful guidance of research work.

Candidates already in employment should send their application through their employers. They may, however send an advance copy which must be received in University Office on or before the due date. Applications received after due date shall not be considered. The age of superannuation is sixty years.

The candidates will be required to appear for the interview, if called, at their own cost. The Selection Committee may recommend higher initial salary to a person specially qualified for the post.

The last date for applicants residing outside India is **15.8.1981**.

All communications should be addressed to the Registrar by designation only.

REGISTRAR

HARYANA AGRICULTURAL UNIVERSITY

HISSAR

Advertisement No. 3/81

APPLICATIONS invited for following posts. Higher start outstanding qualifications, experience and achievements. Benefits of Contributory Provident Fund and leave etc. according to University Rules. Applications of the candidates already in service must reach through proper channel upto the fixed date. Applications on prescribed form (obtainable free by sending self-addressed unstamped envelope size 23 x 10 cms. to Assistant Registrar (R), HAU, Hissar) accompanied by prescribed fee of Rs. 10/- in the form of Crossed Postal Order in the name of Assistant Registrar(R), HAU Hissar payable at HAU Post Office Hissar, should reach Registrar by **4.8 1981**. The applicants must possess prescribed qualifications and experience on the last date for receipt of applications. The envelope containing application must be superscribed as "APPLICATION FORM FOR THE POST OF.............."

1. **Professor of Eminence in Agril. Economics (Sir Chhotu Ram Chair)**: (One)—Eminent Scientist of National and International repute with distinguished and productive record of work in the discipline.

2. **Senior Breeder (Feed and Forage Sorghum)**—(One) : Essential : (i) Second class B.Sc. (Ag.)/B.Sc. (ii) Second Class M.Sc. (Ag.)/M.Sc. in Plant Breeding/Genetics/Ag. Botany. (iii) Ph.D. in Plant Breeding/Genetics/Ag. Botany. (iv) Ten years experience of research/teaching/extension in Plant Breeding preferably on forages out of which at least 5 years should be as Associate Professor or of equivalent rank.

3. **Associate Professor Helminthology**—(One) : (i) Second class B.V.Sc. and A.H. (ii) Second class M.V.Sc. in Parasitology with specialisation in Helminthology. (iii) Ph.D. in Veterinary Parasitology with specialisation in Helminthology. (iv) Atleast five years experience of teaching/research/extension in Vety. Parasitology/Helminthology.

4. **Scientist (Child Development)** : (i) Second class B.Sc. Home Sc. (Hons.) in Child Development/B.Sc. Home Sc. (ii) Second class M.Sc. in Home Sc. Child Development. (iii) Ph.D. in Child Development. (iv) Five years experience of teaching/research/extension in the field of Child Development.

5. **Scientist (Home Management)**—(One) : Essential: (i) 2nd class B.Sc. Hom Sc./ B.Sc. Home Sc. (Hons.) (ii) Second class M.Sc. in Home Sc. with specialization in Home Management. (iii) Ph.D. in Home Management. (iv) Five years experience of teaching/research/extension in Home Management. Desirable: (i) Experience in guiding M.Sc. students.

6. **Wheat Breeder**—(One) : (i) Second class B.Sc. (Ag.)/B.Sc. (ii) Second class M.Sc. (Ag.)/M.Sc. in Plant Breeding/Genetics/Ag. Botany. (iii) Ph.D. in Plant Breeding/Genetics/Ag. Botany. (iv) Five years experience of research/teaching/extension in Plant Breeding/Genetics in Wheat Crop.

7. **Associate Professor (Vety. Medicine)**—(One) : (i) Second class B.V.Sc. and A.H. (ii) Second class M.V.Sc. in Vety. Medicine. (iii) Ph.D. in Vety. Medicine or allied fields. (iv) Five years experience of teaching/research/extension in Vety. Medicine or allied fields.

8. **Entomologist**—(One) : (i) Second class B.Sc. (Ag.). (ii) Second class M.Sc. (Ag.) in Entomology. (iii) Ph.D. in Entomology. (iv) Five years' experience of teaching/research/extension in Entomology/Economic Entomology.

9. **Associate Professor of Zoology**—(One): (i) Second class B.Sc. with Zoology. (ii) Second class M.Sc. in Zoology. (iii) Ph.D. in Zoology preferably with specialization in Ecology. (iv) Five years experience of teaching/research/extension in Ecology preferably with reference to mites and rodents.

10. **Economic Botanist (NSP)**—(One): (i) Second class B.Sc. (Ag.)/B.Sc. (ii) Second class Master's degree in Plant Breeding/Genetics/Ag. Botany. (iii) Ph.D. in Plant Breeding/Genetics/Ag. Botany. (iv) Five years experience of research/teaching/extension in Plant Breeding with particular reference to

production of Breeder Seed of different crops/varieties.

11. **Economic Botanist (Cotton)** (One): (i) Second class B.Sc./B.Sc. (Ag.). (ii) Second class Master's degree in Plant Breeding/Genetics/Ag. Botany. (iii) Ph.D. in Plant Breeding/Genetics/ Ag. Botany. (iv) Five years experience in teaching/research/extension preferably on cotton. (Note: Those who applied earlier in response to Advt. No. 8/80 need not apply again).

12. **Associate Professor (Feed Technology)**—(One): Essential : (i) Second class B.Sc. Hons. (Animal Science)/ B.V.Sc. and A.H./B.V.A.Sc./B.Sc.(Ag.)/ B.Sc. (Dairy). (ii) Second class M.Sc. in Animal Nutrition/Feed Technology. (iii) Ph.D. in Animal Nutrition/Feed Technology. (iv) Five years' experience in teaching, research, extension in the field of animal feed technology/nutrition. Desirable: (i) Training in Animal Feed Technology. (ii) Experience in procurement and processing of feeds for various categories of livestock and poultry.

13. **Associate Professor of Mathematics**—(One) : Essential: (i) Second class B.A. or B.Sc. with Mathematics. (ii) Second class M.A. or M.Sc. in Mathematics/Pure Mathematics. (iii) Ph.D. in Mathematics. (iv) Five years experience in Teaching or Research. Desirable: (i) Teaching experience of postgraduate classes. (ii) Competence in Algebra and exposure to Statistics/ Operational Research.

14. **Associate Professor of Rural Sociology**—(One) : Essential: (i) Second class B.Sc.(Ag.)/B.V.Sc. or B.A. (ii) Second class M.A. in Sociology or M.Sc. in Rural Sociology. (iii) Ph.D. in Sociology or Rural Sociology. (iv) Five years' experience of teaching/ research/extension. Desirable: (i) Knowledge of basic statistical methods. (ii) Experience should be preferably in rural sociology.

15. **Assistant Scientist (Genetics Department)**—(One) : (Discipline-Genetics/Botany/Plant Breeding with training in tissue culture).

16. **Assistant Scientist (Acarology)** : —(One) : (Discipline-Zoology)

17. **Assistant Scientist (Plant Physiology)**—(One) : (Discipline-Plant Physiology).

18. **Assistant Professor of Entomology** —(One) : (Discipline-Agril. Entomology).

19. **Assistant Research Officer (Physiology)**—(One) : (Discipline—Animal Physiology).

20. **Assistant Scientist (Agril. Economics)**—(Two) : (Discipline—Agril. Economics).

21. **Assistant Scientist (Evaluation)**: (One) : (Discipline—Agril. Economics)

22. **Assistant Scientist (Plant Pathology)**—(One): (Discipline—Plant Pathology OR Botany with specialisation in Plant Pathology).

23. **Assistant Soil Chemist**: **(Department of Microbiology)**—(One): (Discipline—Agriculture Chemistry, Soil Science or Microbiology with specialization in Soil Microbiology)

24. **Junior Scientist (Animal Nutrition)**—(One) : (Discipline—Animal Nutrition)

25. **Assistant Scientist (Animal Nutrition)**—(One) : (Discipline—Animal/ Poultry Nutrition)

26. **Assistant Professor (Livestock Economics)**—(One) : (Discipline—Agricultural Economics/Dairy Economics/ Livestock Economics).

Qualifications (For posts at Sr. Nos. 15 to 18 and 20 to 23)

(i) Atleast second class at Bachelor's level. (ii) Master's degree in the first class or with an OGPA of not less than 3.2/4.00 or equivalent in the disciplines mentioned against each post. OR atleast second class Master's degree followed by Ph.D. in the disciplines mentioned against each post.

Qualifications (For posts at Sr. Nos. 19 and 24 to 26)

(i) Atleast second class B.Sc. (Ag.)/ B.V.Sc. and A.H./B.Sc. (An.Sc.)/B.Sc. /Dairying' (ii) Master's degree in the first class or with an OGPA of not less than 3.2/4.00 or equivalent in the disciplines mentioned against each post OR atleast second class Master's degree followed by Ph.D. in the disciplines mentioned against each post.

27. **Assistant Scientist (Forestry)**—(One) : Essential : (i) Second class B.Sc./B.Sc.(Ag.)/B.Tech./B.E. (ii) Second class A.I.F.C. (Associate Indian Forest College)/Master's degree in Forestry or equivalent. (iii) Three years' experience in Forestry. Desirable: (i) Training/experience in Forestry education/Research.

28. **Assistant Professor of Physical Education (Wrestling)**—(One) : Essential: (i) Bachelor's degree with atleast one year course leading to diploma in Physical Education OR B.P.E. (ii) N.S./N.I.S. diploma in concerned sport. (iii) M.P.E. regular course/M.P.E. (Summer Course)/M.P.Ed. (one year course)/M.A. in Physical Education (2 year course)/M.P.Ed. (2-year course). (iv) Participation in Inter-University/ State/National/International level in concerned sport. Desirable: (i) Qualified official in the concerned sport. (ii) Publication of Books/Articles in Journals. (iii) Coaching Inter-Varsity/ State/National/International teams (iv) Three years coaching/teaching experience in a College/University. (Note: Those who applied earlier in response to Advertisement No. 1/81, need not to apply again).

29. **Sub Divisional Engineer (Design)**—(One) : Essential : (i) B.Sc. (Engg.) in Civil Engineering in 1st Division from any recognised University or any equivalent qualifications. (ii) One year experience in structural design with leading firms or Govt. Departments. Desirable: (i) Post-Graduate specialisation in structural design of modern multi-storeyed R.C.C. structures will be preferred. (ii) About three year's experience in structural design with leading firms or Govt. Departments would be desirable.

Note

1. For posts at Sr. Nos. 2 to 14, one or more qualifications relaxable in case of candidates found otherwise outstanding.
2. Special weightage will be given to extension experience possessed by the candidates, for posts in disciplines amenable to extension.
3. For posts at Sr. Nos. 15 to 28, one or more qualifications relaxable in case of candidates found otherwise very suitable.
4. For posts at Sr. Nos. 15 to 26, persons who do not possess Ph.D. at the time of their selection shall not be allowed to cross the stage of Rs. 1300/- in the scale of Rs. 700-40-1100-50-1600.
5. No. of posts mentioned against each post is likely to vary.
6. 20% and 10% vacancies of Assistant Professors and equivalent are reserved for Scheduled Castes and Backward Classes candidates respectively, if suitable candidates from these categories are available.

PAY SCALES

Pay Scale	Total emoluments at the initial of the pay scale (exclusive of House Rent)
Sr. No. of post : 1 Rs. 3000/- plus allowances	Rs. 3450/-
Sr. No. of posts : 2 Rs. 1500-60-1800-100-2000-125/2-2500.	Rs. 2110/-
Sr No. of posts : 3 to 14 Rs. 1200-50-1300-60-1900.	Rs. 1765/-
Sr No. of posts 15 to 28 Rs. 700-40-1100-50-1600.	Rs. 1153/-
Sr No. of posts : 29 Rs. 900-40-1100-EB-50-1400-60-1700 plus Rs. 100/- as special pay	Rs. 1185/-

REGISTRAR

UNIVERSITY OF BOMBAY

Bombay-400032

Applications are invited in the prescribed form for the following posts in the University:

1. **Two Lecturers**– Centre of Advanced study in Economics
2. **Lecturer**– Applied Psychology
3. **Professor**– Mathematics
4. **Three Readers**—History
5. **Reader**—Marathi
6. **Krishan Chander Professor of Urdu** —Urdu

7. **Lecturer**—Urdu
8. **Lecturer in Chemsitry**—Chemistry
9. **Reader**—Physics
10. **Two Lecturers**—Physics
11. **Professor**– Centre of East African Studies (Area Studies Programme)
12. **Professor**– Centre of Soviet Studies (Area Studies Programme)

The pay-scales of the posts are as follows: Professor– Rs. 1500-60-1800-100-2000-125/2-2500; Reader– Rs. 1200-50-1300-60-1900; Lecturer– Rs. 700-40-1100-50-1600. In addition to pay, Dearness Allowance, House Rent Allowance and Compensatory Local Allowance will be paid according to the University rules. The total emoluments at the minimum of the respective pay-scales at the current rates of allowances are as follows: Professor Rs. 2,297.50, Reader—Rs 1,994.50, Lecturer—Rs. 1,312.50. A higher starting pay may be given to persons appointed to the posts of Professor and Reader in special cases. All posts carry the benefits of Provident Fund and Gratuity according to the University rules.

The appointments will be made on probation for two years but the probationary period may be reduced by the Executive Council in special cases. Other things being equal, preference will be given to candidates from backward classes. The posts of Lecturer are reserved for candidates belonging to scheduled castes and scheduled tribes and will be filled up by appointment of such persons only as shall satisfy the requirements regarding qualifications, experience etc. laid down for the posts; provided, however, that if no candidate is available from scheduled castes and scheduled tribes, the posts will be filled up by appointment of duly qualified persons from among the other candidates.

The minimum qualifications prescribed for the posts are as under :

Professor

An eminent scholar with published work of high quality, actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Reader

Good academic record with a Doctor's degree or equivalent published work. Evidence of being actively engaged in (*i*) research or (*ii*) innovation in teaching methods or (*iii*) production of teaching materials.

About five years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

Lecturer

(a) A Doctor's degree or research work of an equally high standard; and

(b) Consistently good academic record with First or high Second class (B+ in the seven-point scale) Master's degree in a relevant subject or an equivalent degree of a foreign University.

Having regard to the need for developing inter-disciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

The Executive Council may relax any of the qualifications prescribed in (b) above provided that the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard.

If a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, the Executive Council may appoint a person possessing a consistently good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) provided he has done research work for at least two years or has practical experience in research laboratory/organization on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment failing which, he will not be able to earn future increments until he fulfils these requirements.

Explanation: (1) For determining consistently good academic record, a candidate should either have an average of 55% marks at the two examinations prior to Master's degree (irrespectve of the marks obtained in any of the two examinations) or 50% marks at each of the two examinations separately.

(2) For determining high second class, the mid-point between the minimum percentages of marks fixed by a University for award of Second class and First class may be taken.

The additional qualifications prescribed for the posts are as under :

1. **Two Lecturers (CAS in Economics)**—Candidates must be conversant with modern tools of analysis in Economics.

2. **Lecturer (Applied Psychology)**—A strong academic background in subjects like experimental psychology and physiological psychology and advanced psychological statistics and experimental design is essential. Specialization in one of the applied fields of experimental and industrial/social psychology is desirable.

3. **Professor (Mathematics)**—Specialisation in Number Theory.

4. **Three Readers (History)**—For post (*i*) Specialisation/Research experience in History of Modern Maharashtra/Historical Method is desirable; for post (*ii*) Specialisation/Research experience in Medieval Indian History, Social and Economic/West Asia is desirable; for post (*iii*) Specialisation/Research experience in Economic Social History of Modern India/European History/Chinese History is desirable.

(*Note*: Candidates should mention specialisations in their applications)

5. **Reader (Marathi)**—Specialisation in (*i*) Theory of Literature and Literary Criticism, Indian and Western (Modern in particular); (*ii*) Post-Second World War Literature in Marathi (*i.e.* 1945 onwards).

6. **Krishan Chander Professor of Urdu (Urdu)**—Knowledge of Marathi essential with special reference to development of language and literature in Urdu and Marathi in Maharashtra.

7. **Lecturer (Urdu)**—Knowledge of Marathi essential.

8. **Lecturer in Chemistry (Chemistry)**—The Doctor's degree or equivalent research work must be in Inorganic Chemistry. Experience of research work in Structural Inorganic Chemistry or Bio-inorganic Chemistry or Nuclear and Radio-chemistry is preferable. Experience of teaching Inorganic Chemistry is desirable.

9. **Reader (Physics)**—Experience in development of innovative teaching methods, aids, materials and demonstration experiments in Physics for College Science Improvement Programme is desirable.

10. **Two Lecturers (Physics)**—Experience in College Science Improvement Programme is desirable.

11. **Professor (Centre of East African Studies)**—Specialisation in Economics/Politics/Sociology / History / Geography with research work and experience in Indo-African relations and African studies as evidenced by published work.

12. **Professor (Centre of Soviet Studies)**—Specialisation in Economics/Politics/Sociology/History/ Geography with research work and experience in Indo-Soviet relations and Soviet studies as evidenced by published work.

Eight copies of the application in the prescribed form, together with copies of certificates, should be sent in an envelope superscribed with "Application for the post of......" so as to reach the Registrar (Teaching Appointments Unit), University of Bombay, Fort, Bombay—400 032, *on or before* **Tuesday, 11th August, 1981.** Candidates from abroad, Andaman and Nicobar Islands and Lakshadweep may send their applications so as to reach the Registrar *on or before* **Tuesday, 25th August, 1981.** Applications received after the last date will not be considered.

Prescribed forms of application can be had in person, free of charge, from the Teaching Appointments Unit, Registrar's Office (Room No. 110), University of Bombay, Fort, Bombay-400 032. Requests for supply of a set of eight prescribed forms by post should be made sufficiently in advance with a self-addressed stamped (Rs 1.80) envelope of the size of 27 x 12 cms.

Candidates should send with every

application a crossed Indian Postal Order or a crossed Demand Draft on a scheduled bank for Rs. 10/- drawn in favour of the Registrar, University of Bombay, payable at Bombay, as application fee. Candidates who apply for more than one post should send separate applications along with the requisite fee by means of a crossed Indian Postal Order/Demand Draft. Money Orders or Cheques or Cash will not be accepted by the University, The fee will not be refunded once an application has been received by the University.

Incomplete applications and applications without the requisite fee will not be considered. Applications on plain paper will also not be considered.

Candidates are advised to satisfy themselves before applying that they possess the prescribed qualifications and it is for the candidates themselves to ensure that they possess the prescribed qualifications. No inquiry asking for advice as to eligibility will be entertained.

Candidates called for interview will have to present themselves at their own expenses.

Canvassing, direct or indirect, will be a disqualification.

G.M. Rajarshi
REGISTRAR

PUNJABI UNIVERSITY
PATIALA

Advertisement No. 8 PRO/Estt./81

Applications are invited for the following posts:

1. **PROFESSORS**

(One each in Human Biology, Law, Punjab Historical Studies and two in Economics including one leave vacancy till 1.11.1984)
(Grade Rs 1500-60-1800-100-2000-125/2-2500)

Qualifications

An eminent Scholar with published work of high quality activity engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Specializations

Professor in Human Biology
The candidate should be a Human Biologist trained preferably in Human Growth.

Professor in Punjab Historical Studies
Candidates must have done research work of outstanding merit in Punjab History. Knowledge of Persian and Punjabi to handle original historical manuscripts is desirable.

Professor in Economics
General Economic Theory, Regional Economics, Quantitative Economics.

2 (a) **READERS**

(Two in Economics and one each in Anthropological Linguistics and Botany)
Grade Rs. 1200-50-1300-60-1900.

Qualifications

(a) Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) Production of teaching materials.

(b) About 5 years experience of teaching and/or research provided that at least three years of these were as Lecturer or in an equivalent position. This condition is relaxable in the case of candidates with outstanding research work.

Specializations

Readers in Economics
Economic Growth; Development; and Planning Theory and Policy, International Economics, Political Economy.

Reader in Anthropological Linguistics
Master's degree should be in any language or Linguistics with Doctorate in any field of Anthropological Linguistics.

Reader in Botany
Plant Ecology/Angiosperm-Taxonomy.

2(b) **READER IN LAW (ONE)**
(Grade Rs 1200-50-1300-60-1900)

Qualifications

At least a Second Class Master's degree in Law from a recognised University or its equivalent degree. Preference will be given to those who possess Doctorate in Law.

Desirable

About five years experience of teaching and/or research, out of which at least three years should be as Lecturer or in an equivalent position.

3. **LECTURERS**

(Three in Economics and one in Botany)
(Grade Rs. 700-40-1100-50-1600)

Qualifications

(a) A Doctor's degree or research work of an equally high standard in the relevant subject, and

(b) Consistenly good academic record with 1st or high Second class (B in the seven point scale) Master's degree in a relevant subject or an equivalent degree of a foreign University.

(c) Qualifications prescribed in (b) above are relaxable in case the research work of a candidate as evident either from his thesis or from his published work is of a very high standard. If a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing consistently good academic record (Weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research Laboratory/Organization on the condition that he will have to obtain Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements.

Specializations

Lecturers in Economics (Two)
Any two of the following:
General Economic Theory; History of Thought; Economic History; Economic Systems; Economics of Socialism; International Economics; Monetary and Fiscal Theory and Institutions; Manpower; Labour; Population.

For Third Post of Lecturer in Economics
Master's degree in Political Science as well as Sociology

Lecturer in Botany
Bryology/Morphogenesis/Molecular Genetics

4. **Lecturers in Law: (Two)**
(Rs. 700-40-1100-50-1600)

Qualifications

At least a second class Master's degree in Law from a recognised University or its equivalent degree with consistently good academic record.

Desirable

About three years experience of teaching/research out of which two years should be as a Lecturer or in an equivalent position.

5. **Research Assistant-cum-field investigator in Centre for Research in Economic Change**
(Rs. 550-20-650-25-750)

Qualifications

Master's degree in Economics with 55% or more marks. Degree in Bachelor of Library Science is desirable.

6. **Research Scholar-cum-Demonstrators (Two)**
in Physics Department.
(Tenable for two years in the first instance at Rs 400/ p.m. all inclusive)

Qualifications

Candidates should possess atleast second class Master's degree with atleast one year teaching/research experience after obtaining Master's degree provided that the condition of experience may be relaxed in the case of first class M.Sc.'s provided further that a candidate with at least 55% marks both in B.Sc. and M.Sc. could also be considered in case no first class M.Sc. is available.

General

Candidates for teaching and research posts should possess working knowledge of Punjabi up to Punjabi Praveshka standard. Persons from outside Punjab could however be considered for appointment but they will be required to give an undertaking in writing that they will acquire the requisite qualifications in Punjabi within a period of two years.

Higher start within the grade admissible depending upon the ability and experience of the candidate. House rent and Dearness allowance, Provident Fund and Medical facilities according to the University rules.

Applications complete in all respects on the prescribed form accompanied by a crossed Postal Order worth Rs. 5/- (Rs. 2/- for candidates belonging to Scheduled Caste/Tribes and Backward Classes) drawn in favour of the Registrar, Punjabi University, Patiala should reach the University by **25-7-81.** The forms can be had from the Production and Sales Officer, Publication Bureau, Punjabi University, Patiala on payment of Re. 1/- by sending a crossed Indian Postal Order drawn in favour of the Registrar, Punjabi University, Patiala, along with a self addressed envelope of the size of 25 x 10 cms. stamped with 35 paise postage which should be superscribed at the Top in bold letters REQUEST FOR APPLICATION FORM FOR THE POST OF ....

Persons already in service should apply through proper channel. Government servants who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before the due date and ....regular applications through proper channel by **28-7-81.**

REGISTRAR

SAMBALPUR UNIVERSITY

JYOTI VIHAR : BURLA

Sambalpur (Orissa) Pin-768 017

Advertisement No. 10013/Estt-II
Dated 17.6.81

Applications in the prescribed form are invited for one post of Reader in Anthropology and Sociology in the scale of pay of Rs. 1200-50-1300-60-1900/- in the University Post Graduate Department of Anthropology and Sociology at Jyoti Vihar, Burla. The post carries usual benefits as per rules of the University.

Qualification

(i) A consistently good academic record with first or high second class Master's Degree in the concerned subject or equivalent Foreign Degree with Grade B + or 55% marks which may be relaxed in case of candidates otherwise found suitable.

(ii) Good academic record with a Doctorate Degree or equivalent published work.

(iii) Evidence of active participation in research.

(iv) Eight year's experience of Teaching and/or Research out of which at least five years shall be as Lecturer in the University Post Graduate Departments/College at Honours/Post Graduate level.

Specialisation required

Physical Anthropology.

Seven copies of the application forms will be supplied from the University Office to each candidate in person on cash payment of Rs. 15/- (Rupees Fifteen) only. Candidates intending to receive forms by post are required to send (a) Crossed Postal Order of Rs. 15/- payable to the Finance Officer, Sambalpur University, Jyoti Vihar, Burla (b) a self addressed envelope (23 cm x 10 cm) with postage stamps worth Rs. 3.30 p. affixed to it with the words "APPLICATION FORM FOR TEACHING POSTS IN SAMBALPUR UNIVERSITY" superscribed on it. Money Order/Cheque will not be entertained.

The last date of receipt of applications in the Office of the University at Jyoti Vihar, Burla, Sambalpur (Orissa) is **24.7.81.** The candidates will be required to appear for an interview before a Selection Committee at their own expenses.

REGISTRAR

INDIRA KALA SANGIT VISHWAVIDYALAYA

Khairagarh (MP) 491881
Dated 30th June 1981

Applications are invited for the post of One Lecturer in English. Presently, appointment will be temporary. Scale: Rs. 700-1600/- Qualifications exactly as prescribed by the University Grants Commission. Post reserved for Scheduled Tribe. But if suitable candidates are not available, selection will be made from unreserved category. Details and forms obtainable by sending self addressed stamped envelope of Rs. 1.40 of 25 x 12 cms. Application fee Rs. 5/-. Last date for receipt of applications **10th August, 1981.**

D.K. Ghosh
REGISTRAR

JADAVPUR UNIVERSITY

CALCUTTA-700 032

Employment Notification No. A2/C/3/81
Dated 4th July, 1981

The University invites applications in the prescribed form for the following posts :

1. Professor
   (a) Mechanical Engineering —One post
2. Reader
   (a) Mechanical Engineering —One post
   (b) Chemical Engineering —One post
   (c) Metallurgical Engineering —Two posts
   (d) Mathematics —One post
3. Lecturer
   (a) Mechanical Engineering —Four posts
   (b) Chemical Engineering —Three posts
   (c) Mathematics —Two posts,

Qualifications for Professor Post
Essential

(i) Research degree of Doctorate standard or published papers of an equally high standard.

(ii) Consistently good academic record with at least high second class Master's degree in Mechanical Engineering of Indian Universities or equivalent.

(iii) Ten years' teaching/industrial/research experience of which at least five years must be in teaching at post-graduate level.

(iv) Proven ability to guide research.

Qualifications for Reader Posts at 2(a), 2(b) and 2(c)
Essential

(i) Consistently good academic record with at least high second class Master's degree in relevant subjects of an Indian Universities or equivalent.

(ii) Five years teaching/research/industrial experience of which at least three years must be in teaching at an Engineering Degree College/University.

Qualifications for Reader Post at 2(d)
Essential

(i) Research degree of Doctorate standard or published work of an equally high standard.

(ii) Consistently good academic record with atleast high second class Master's degree in the relevant subject of Indian Universities or equivalent.

(iii) Five years' research or teaching experience of which at least three years must be in Post-graduate level.

Qualification for Lecturer Posts at 3(a) and 3(b)
Essential

(i) At least high Second Class Master's Degree in the relevant subjects of Indian Universities or equivalent with consistently good academic record.

Qualifications for Lecturer Post at 3(c)
Essential

(i) Research degree of doctorate standard or published work of an equally high standard.

(ii) Consistently good academic record with at least high Second Class Master's Degree in the relevant subject of Indian Universities or equivalent.

Explanatory note in respect of all kinds of posts as at serial Nos. 1,2,3 above

Candidates should either have an average of 55% marks of the two examinations prior to Master's degree (irrespective of the marks obtained in any of the two examinations) or 50% marks in each of the two examinations separately.

Desirable for Professor Post

(i) Experience of organising laboratories.

(ii) Corporate Membership in recognised professional bodies.

Desirable for Reader Posts at 2(a), 2(b) and 2(c)

(i) Research degree or published papers of high standard.

(ii) Corporate Membership in recognised professional bodies.

(iii) Ability to guide research.

Desirable for Reader Post at 2(d)

Ability to guide research.

Desirable for Lecturer Posts at 3(a) and 3(b)

Teaching/Industrial/Research experience of two years.

Desirable for Lecturer Post at 3(c)

Two years' research or teaching experience upto Honours standard.

The requirement of research degree may be relaxed in case of candidates having brilliant career with research experience.

For one post, it is desirable to have evidence of specialisation in Computer studies relevant to teaching at undergraduate and post graduate levels.

For the other post, it is desirable to have evidence of specialisation in Statistics relevant to teaching at under graduate and post graduate levels.

Specialisation for Professor Post

Applied Mechanics/Fluid Mechanics/Machine Design/Heat Power/Production.

Specialisation for Reader Posts

2(a)—Applied Mechanics Fluid Mechanics/Machine Design/HeatPower/Production.

2(b)—Energy, Mass and Momentum transfer; Thermodynamics; Kinetics & Reactor Design; Chemical Technology; Process Instrumentation, Dynamics & Control; Petroleum Refinery Engineering; Petro-chemicals; Project Engineering; High Polymers; Combustion Engineering & Furnace Technology; Chemical Plant Design, Process Analysys & Optimization; Computer aided design (Chem. Engg.); Biochemical Engineering; Transport Phenomena; Chemical Engineering Mathematics; Cryogenics; Operations research in Chemical Engineering.

2(c)—Foundry Welding, Joining of Metal—One post

Extractive Metallurgy/Hydrometallurgy and Electrometallurgy—One post

Specialisation for Lecturer Post

3(a)—Applied Mechanic/Heat Power/Fluid Mechanics/Machine Design/Production Engineering.

Scales of Pay

Professor—Rs. 1500-60-1800-100-2000-125/2-2500/-.

*Reader—Rs. 1200-50-1300-60-1900/-.

*Lecturer—Rs. 700-40-1100-50-1600/-.

*Person who is in the old scale might be considered eligible for appointment of higher post in the old scale.

Those who have applied earlier for the post of Lecturer in Mechanical Engineering in response to the Employment Notification No. A2/C/2/81 dated **29-1-1981** need not apply again.

Last date of receiving application is **July 25, 1981.**

Application forms are obtainable from the University Office during working hours on payment of Rs. 2/- or by post on payment of Rs. 2/- + Re. 1/- as postal charges. No travelling allowance is admissible to candidates called for interview. Higher initial salary may be given to really deserving candidates. Those who are in employment should submit their application through proper channel. Choice of the Appointment Committee will not necessarily be confined to applicants only. Canvassing in any form will disqualify a candidate.

REGISTRAR

INDIAN SCHOOL OF MINES

DHANBAD-826 004

Corrigendum to Advertisement No. 420004/81-Estt. dated 18.6.1981.

Qualification for one post of SENIOR TECHNICAL ASSISTANT in the Deptt. of Applied Geophysics.

"M.Sc. in Applied Geophysics with two years experience in repair and maintenance of Geophysical instruments.

OR

B.Sc. with 5 years experience of similar type."

S.P. Varma
REGISTRAR

Educational Journalism in India

(*Contd. from page 386*)

associate/assistant wherever available, has to attend to all correspondence, receive subscriptions, send receipts, issue reminders for renewing subscriptions, keep accounts and make both ends meet. Inviting, selecting, editing articles, writing editorials, providing necessary fill-up information, attending to outlay of the issue, getting the issue composed, printed and despatched is usually the duty of the editor which he manages almost single handed.

Financing of educational journals

Finance for educational journals is another problem. Government grants are rare: cheap paper is made available only occasionally and therefore maintaining the periodical is always a problem. Unless the journal has selfless workers and has a sale of over 2,500 copies it does not become viable.

Keeping all the above problems in mind, one could sum up by saying that: (1) educational journals are very few and certainly not commensurate with the number of institutions and teachers; (2) permanent infrastructure should be provided to the editors of teachers' journals to attend to their real job with facility; (3) the quality of journals be improved and more food for thought be provided; (4) study of educational journalism as a discipline in our universities and research thereon should be encouraged; and (5) general newspapers and periodicals should be persuaded to open regular educational columns. ☐

Open University

(*Contd. from page 381*)

and which can offer education in the homes of students. One alternative is Open University system and distance teaching technique.

For students who cannot afford the costly education imparted through formal teaching and who, for force of circumstances, are compelled to discontinue their studies—Open University is a blessing. A large number of students are being deprived of the opportunity for University education for, immediately after their school education, financial constraints make it necessary for them to earn. And many of them who get employment of one kind or another want to pursue their studies, if possible, while earning. Open University system is an effective tool for materialising their dreams.

The Open University should have three objectives :

(i) To design and operate non-formal alternative system of education.
(ii) To offer vocational and life enrichment courses.
(iii) To promote an open Distance Learning system of education through research, publications and information dissemination. ☐

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Statistics

1. Kanungo, Yogesh Chander. Study of bias and mean square error of variance estimates involving three preliminary tests of significance in Anova model II. Vikram University.
2. Krishna Mohan Rao, C. On inference based on conditional specification of a mixed model. Vikram University.
3. Sharma, Devendra. Statistical appraisal of unemployment of educated personnel. Meerut University.
4. Sharma, S.N. Development of mathematical models and application in demographical problems: Some results on fertility performance based on data from six urbanising villages. Kanpur University.
5. Sukhpal Singh. Methods of analysis on statistical experiments. Meerut University.
6. Thakur, Laxman Baburao. On some problems in the theory of stochastic differential and integral equations. Marathwada University.

Mathematics

1. Dixit, Kaushal Kishore. Some estimates of the growth of analytic functions represented by Dirichlet series. Kanpur University.
2. Ganju, Kanaya Lal. Some problems on hydrodynamic and magneto-hydrodynamic lubrication. Meerut University.
3. Jain, Suresh Chand. Some problems in bitopological spaces. Meerut University.
4. Katiyar, Vinod Kumar. Analytical studies of transfer processes in two phase flows. Kanpur University.
5. Krishan Gopal. A study in the growth properties and mean values of analytic functions. Meerut University.
6. Manikyamba, Pulavarti. Representation of bounded distributive semilattices by sections of sheaves over Boolean spaces. Andhra University.
7. Prasad, Jageshwar. A study on lattice theory and autometrized algebra. Magadh University.
8. Pushpa Kumari. A study of some covering properties and some generalized metric properties. University of Delhi.
9. Ved Priya. A study of multiple users and side channels under fidelity criterion. University of Delhi.

Physics

1. Bindal, Arvind. Study on the growth and optical and electrical properties of pure and doped single crystals of ferroelectric lithium niobate. University of Delhi.
2. Chadha, Rajan. Microwave radiometric studies of atmospheric attenuation over the Indian Sub-continent. University of Delhi.
3. Choure, R.S. Plastic behaviour and micro-structural deformation of solids under stresses. Universiy of Jabalpur.
4. Dhar, Sunanda. Some experimental techniques in the study of semiconductors. University of Calcutta.
5. Giri, Nimai Chand. A new approach to scaling of differential cross section for elastic and inelastic hadronic collision processes. Sambalpur University.
6. Harish Bahadur. Investigations on oscillating and structural characteristics of quartz crystals. University of Delhi.
7. Kapoor, R.N. Molecular vibrations in organic systems. Kanpur University.
8. Majumdar, Harashit. Energy and mass distributions in nuclear fission. University of Calcutta.
9. Mohamed Tantawy Mohamed. High energy interaction of prctons with protons and nuclei. University of Rajasthan.
10. Nandanpawar, Manik Laxman. Study of elastic and acoustic properties of materials. Nagpur University.
11. Patari, Kripanath. Nucleon-nucleon scattering at high and low energy regions on the basis of a new model of hadrons. University of Calcutta.
12. Premachandran, S.K. Growth and characterisation of certain organic crystals. University of Cochin.
13. Ram Sagar. Studies in star clusters. University of Gorakhpur.
14. Sarna, Rajinder Kumar. Studies on order parameter in liquid crystals and guest-host interaction. University of Delhi.

Chemistry

1. Awasthi, Alok Kumar. Studies on some sulfuranes. Kanpur University.
2. Banerjee, Nandita. Chemistry of the higher oxidation states of chromium and molybdenum. University of Delhi.
3. Banga, Anil Kumar. Studies on electron donor acceptor complexes and their possible role in chemical reactions. Kanpur University.
4. Bhandari, Kuldip Singh. Physico-chemical studies of rare metal complexes with special reference to their electrometric behaviour. Meerut University.
5. De, Debbala. Optical and other studies of some transition metal complexes. University of Calcutta.
6. Dhawan, Subhash. Chemical studies on lipid metabolism in experimental hyperlipidaemia. Kanpur University.
7. Dheer, Dharam Pal Singh. Polarographic studies and stability constants of metal ion complexes in aqueous and aqueous organic solvent mixtures. University of Rajasthan.
8. Dogra, Ramesh. Studies in the graft copolymerization of vinyl monomers on to starch cellulose and wool. Himachal Pradesh University.
9. Gangopadhyay, Syamal. Studies on metal vitamin B_6 complexes. University of Calcutta.
10. Gawande, Abhiman Mahadeorao. Thermal reaction on irradiated salts. Nagpur University.
11. Gunasekar, D. Chemical investigation of naturally occurring oxygen heterocycles. Sri Venkateswara University.
12. Jain, Padma. Fluorescent reagents and techniques for thin layer chromatography and electrophoresis of some environmental pollutants. University of Indore.
13. Jesani, Jagdish Chandra. Kinetic studies on oxidation of organic compounds by quadrivalent cerium. University of Jabalpur.
14. Kansal, Vinod Kumar. Studies on the synthesis of possible antihypertensive and diuretic agents. Meerut University.
15. Kapoor, Uma. Studies on centazolone—a tranquillosedative. Kanpur University.
16. Krishna Murari. Studies on the kinetics of crystallization of sucrose. Kanpur University.
17. Misra, Naresh Kumar. Some studies on pyridinium and benzopyridinium yields. Kanpur University.
18. Modi, M.C. Isolation, concentration and purification of pharmaceutical compounds of plant source by use of polymeric materials. Bhavnagar University.
19. More, Prakash Govindrao. Interelectron repulsion parameters and mass spectra of Schiff's base complexes. Shivaji University.
20. Mudaliar, Usha Devi. Studies in the kinetics and mechanism of homogeneous acid catalysed oxidation of some amino acids by potassium permanganate. Vikram University.
21. Nirmal, J.D. Studies on polymer membranes for use in industrial waste treatment. Saurashtra University.
22. Parihar, Padma. Studies on hydrazidoyl halides. Kanpur University.
23. Pasari, Suman. Introduction of functional groups into polyolefins and their copolymerization. Kanpur University.
24. Puri, Raj Kishore. Chemical and biochemical studies in the rabbit fallopian tube during ovum transport. Kanpur University.
25. Ram Das. Investigation of metal complexes by electrochemical methods. University of Rajasthan.

26. Ramesh, V. Macroionic interactions, studies on the activation and inhibition polysaccharide splitting enzymes with special reference to sweet potato amylase. Kanpur University.

27. Saha, Sankarkumar. Studies on polycyclic compounds. University of Calcutta.

28. Samsullah. Biochemical studies on the toxicity of n-octane and n-nonane. Kanpur University.

29. Sharma, Chandra Bhushan. Mechanism of oxidation of some alcohols by chlorine dioxide, Meerut University.

30. Srivastava, Arvind Kumar. Chemical, structural and metabolic studies in filariasis. Kanpur University.

31. Srivastava, Gyan Prakash. Conformational studies of DNA in non-aqueous solutions. University of Gorakhpur.

32. Tripathi, Shakuntala. Redox processes in solution with special reference to potassium paraxodisulphate. University of Jabalpur.

33. Verma, Veena. Studies in new psychotropic agents related to cannabinoids. Meerut University.

34. Vijaya Lakshmi, C. Neurochemical studies on some new psychotherapeutic agents. Kanpur University.

Earth Sciences

1. Acharya, Bhaskar Chandra. Graphite in the Eastern Ghats rocks. Utkal University.

2. Kailasa Reddy, Kambam. Solar energy budget for a tropical station. Andhra University.

3. Pant, P.C. A study of ostracodulrom, the eocene and oligocene beds of Western Kutch, Gujarat, India. University of Rajasthan.

Engineering and Technology

1. Jain, Abhinandan Kumar. Studies on nitrification and denitrification of ammonical wastes. Kanpur University.

2. Lohani, Basant Kumar. Corrosive action of textile chemicals on metals and its prevention. Kanpur University.

3. Ram Kanwar. Analysis of incompressible inviscid fluid flow by finite element method. University of Delhi.

BIOLOGICAL SCIENCES

Anthropology

1. Lalit Kumar. Microevolutionary dynamics of the Ahmadiyyas of Kashmir Valley. University of Delhi.

Biology

1. Andrabi, M. Wajahat H. Biophysical parameters affecting bone behaviour. Jawaharlal Nehru University.

2. Attri, Arun Kumar. Studies on some aspects of DNA-ligand interaction in vitro. Jawaharlal Nehru University.

Biochemistry

1. Balganesh, T.S. Origin of R. Factor—antibiotics producing organisms as a source of foreign nucleic acids. University of Calcutta.

2. Hanifi, Hamid Hussain Shaikh Mahboob. Studies in mixed function oxidase systems. Marathwada University.

3. Suryanarayana Murthy, A. Regulation of pyruvate metabolism in rat brain. Jawaharlal Nehru University.

Botany

1. Arora, Abha. Studies of the changes in some endogenous indoles during different stages of plant development. Meerut University.

2. Arora, Pankaj. Studies on senescence effect of some indoles, gibberellins and cytokinins on leaf and seed senescence. Meerut University.

3. Chauhan, Surendra Singh. Seed mycoflora of triticales and durum wheat. Kanpur University.

4. Chavan, Prakash Dnyandeo. Physiological studies in plants: Physiological studies in Elausine coracana Gaertn. Shivaji University.

5. Deshpande, Nirmala Madhav. Effect of gamma rays and mutagens in Momordica charantia. Nagpur University.

6. Hadke, Suresh Motiram. Effect of herbicides on cytomorphology of weeds Psoralea corylifolia, Parthenium hysterophorus and Euphorbia geniculata. Nagpur University.

7. Hajra, Prabhat Kumar. Flora of Kaziranga National Park and Manas Wild Life Sanctuary of Assam Gauhati University.

8. Jaiswal, Vandana. Regulation of nodulation and certain aspects of nodular nitrogen metabolism by some cytokinins in Phaseolus mungo. University of Gorakhpur.

9. Jasbir Singh. Studies on structural and functional aspects of two sub-tropical humid forest types of Meghalaya. North Eastern Hill University.

10. Kadian, Mohinder Singh. Some ecological studies on intraspecific and interspecific competition in hill agroecosystems. Himachal Pradesh University.

11. Khanna, Rita. Studies on the production of antifungal antibiotics from soil microorganisms and screening for biological control of plan diseases. University of Gorakhpur.

12. Kulshrestha, Manjula. Ecological studies on dry matter production and decomposition of aquatic macrophytes. University of Rajasthan.

13. Maheshwari, Dinesh Kumar. Comparative performance of two varieties of Mentha in relation to nitrogen and phosphorus fertilization. Meerut University.

14. Majumder, Rajendra. Economic aspects of plants of Ayurvedic importance from the Brahmaputra Valley, Assam. Gauhati University.

15. Mallick, Enamul Haque. Induced mutagenesis in some cultivars of indica rice, Oryza sativa Linn. University of Burdwan.

16. Misra, Bhubaneswar Dev. Studies on the effects of growth promoters and retardants and their interactions on the elongation of cucumber hypocotyls in vivo. Gauhati University.

17. Myrthong, Spenliwell. Study on the monocot flora of Meghalaya. North Eastern Hill University.

18. Nautiyal, Kushla Nand. Flora of District Chamoli. Meerut University.

19. Neogi, Bhaskar. Study on the weed flora of agricultural lands and fish ponds of Meghalaya. North Eastern Hill University.

20. Om Prakash. Studies on the ecological impact of shifting agriculture (Jhum) on forested ecosystem. North Eastern Hill University.

21. Ram Krishna. Evaluation of solanaceous weeds as carriers of some important plant viruses. Kanpur University.

22. Raina, Ashok Kumar. Studies on edible mushrooms of Jammu and Kashmir: Investigations on taxonomy, physiology and nutritional value of some Ascomycetes and Gasteromycetes. University of Kashmir.

23. Rath, Simhadri Prasad. Composition, productivity and energetics of grazed and ungrazed grasslands of Berhampur. Berhampur University.

24. Sarkar, Prabir Kumar. Taxonomy, physiology and biochemistry of some members of fresh-water purple nonsulfur bacteria. University of Burdwan.

25. Sharma, Gauri Dutt. Ecological studies on Mycorrhizae on pine, Pinus-kesiya Royle ex. Gordon. North Eastern Hill University.

26. Sharma, Vinay. Studies on flavonoids with particular reference to anthocyanidin patterns in developing plant parts. Meerut University.

27. Shitole, Mahadeo Ganapat Photosynthesis in marine and fresh water algae. Shivaji University.

28. Singh, Raj Pal. Use of the bacteriophages and selective media on the studies of Pseudomonas solancearum, the incitant of bacterial wilt of solanaceous crops. University of Gorakhpur.

29. Singh, Rakesh Pratap. Comparative role of nodal and stalk infections in the epidemiology of red rot of sugarcane. University of Gorakhpur.

30. Sinha, Umesh Kumar. Study on microbiological complex of treated cultivated soils in relation to certain soil-borne plant pathogens. Vikram University.

31. Surendra Pal Singh. Morphological studies in the family Rhamnacae. Meerut University.

32. Taimni, Sheela. Histopathology and histochemistry of root galls induced by Meloidogyne incognita Chitwood and their control in Luffa acutangula Roxb and Solanum melongena Linn. University of Rajasthan.

33. Tiwari, Brajesh Kumar. Studies on microflora of freshwater lake: An ecological approach. North Eastern Hill Universtiy.

34. Tripathy, Baishnab Charan. Effect of some selected heavy metals ions on structure and function of isolated chloroplasts. Jawaharlal Nehru University.

35. Vora, Hareschandra Mohanlal. A contribution to the flora of Dharmapur, Kaprada and Nanapondha ranges. South Gujarat.

Zoology

1. Ananthanarayana, S.R. Physiological and biochemical studies in the silkworm, Bombyx mori L. Bangalore University.

2. Bhupal Singh. Studies on phytophagus mites of Dehradun with special reference to timber trees, crops and vegetables. Meerut University.

3. Choudhury, Sabitry. Studies on establishment of the neural differentiation pattern in prospective prosencepthalic area. North Eastern Hill University.

4. Das, Narendra Kumar. Chromosomes and sex-determining mechanism in marine fishes. Berhampur University.

5. Das, Parimal Kanti. Studies on the limnology of Tasek lake and adjacent bodies in Garo Hills, Meghalaya with special reference to the Chocolate Mahseer, Accroshocheilus hexagonolepis Mclelland. North Eastern Hill University.

6. Das, Snigdha. Studies on the structural and functional aspects of the heart and circulating cells in Lameillidiens marginalis. University of Calcutta.

7. Das, Tarun Kumar. Studies on the citrus nematode Tylenchulus semipenetrans Cobb. University of Burdwan.

8. Desai, Ramachandra Narasingrao. Cytochemical studies on some Cephaline gregarines. University of Burdwan.

9. Garg, Achal. A histochemical and biochemical study of developing tumour induced by a carcinogen 7, 12-dimethylbenz (a) anthracene in rabbit, Oryctolagus cuniculus. University of Rajasthan.

10. Gupta, Abhik. On the taxonomy and biology of Ephemeroptera (Mayflies) of Meghalaya State, India. North Eastern Hill University.

11. Hariharan, N.V. Studies on the effect of selected environmental pollutants with special reference to Parthenium hysterophorus weed and pesticides of some biophysical and biochemical aspects of nerve muscle preparation. Sri Venkateswara University.

12. Joshi, Vishnu Prasad. Studies on the blood of some fresh water fishes. Vikram University.

13. Kakati, Vithal Shankarrao. Studies on crabs of Karwar. Karnatak University.

14. Kankal, Nana Chindhaji. Biological studies of some of the helminth parasites. Marathwada University.

15. Majhi, Arabinda. Studies on biology and chromosome analysis of some teleostean fishes of North-Eastern India. North Eastern Hill University.

16. Malla, Autar Krishen. Studies on morphology, histology and histochemistry of some Cestodes. University of Kashmir.

17. Mondal, Sisir Kumar. Spermatogenesis in different fresh water teleosts. University of Burdwan.

18. Narang, Madan Lal. A contribution to the food habits of Mynas. Meerut University.

19. Prakash, Asha. Light and electron microscopic studies on the excurrent ducts of the male reproductive system in adult rhesus monkey. University of Delhi.

20. Rama Devi, P. Contribution of purine nucleotide cycle enzymes to ammonia metabolism in denervation atrophy of gastrocnemus muscles of Rana hexadactyla (Lesson) with reference to subcellular protein change. Sri Venkateswara University.

21. Ramaiah, Kolluru Venkata Atchuta. A comparative analysis of membranes of normal and Crowngall tissues under some environmental stresses. Jawaharlal Nehru University.

22. Rayudu, Valluri Narasimha. Some aspects of physiology of marine prosobranch mud snail, Nassarius thersites (Brug). Marathwada University.

23. Samal, Pravati. Studies on the natural enemies of brown plant hopper, Nilaparvata lugens Stal of rice. Utkal University.

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SAMBALPUR UNIVERSITY

JYOTI VIHAR: BURLA
Sambalpur (Orissa)
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Advertisement No. 10628/Estt-II
Dated 7.7.81

Applications in the prescribed form alongwith attested copies of certificates and mark-sheets of all examinations passed are invited for appointment to the following posts in the scale of pay Rs. 700-40-1100-50-1600/- in University College of Engineering, Burla.

1. Lecturer in Electronics and Telecommunication Engineering—Three posts.
2. Lecturer in Mechanical Engineering —Two posts.

Out of the two posts of Lecturers in Mechanical Engineering, one post is purely temporary.

The posts carry usual Dearness Allowances and C.P.F.-cum-Gratuity benefit as would be determined by the University from time to time.

The age of superannuation is sixty years.

Qualification

(a) Master's degree in the appropriate field of Engineering/Technology.
(b) Consistently good academic record with a Bachelor's degree in Engineering/Technology with 65% of marks or above at Bachelor's degree and/or 60% marks or above at Master's degree level.
(c) One year relevant professional experience outside academic/research institutions.

Provided that, in case suitable candidates possessing professional experience at (c) above are not available or, a candidate possessing such experience is not found suitable, the person appointed with qualifications (a) and (b) above will be required to obtain desired professional experience within a period of five years of his appointment failing which he will not be able to earn future increments, until he fulfils this requirement. Seven copies of the application forms will be supplied from the University Office to each candidate in person on cash payment of Rs. 15/- (Rupees fifteen) only. Candidates intending to receive forms by post are required to send (a) Crossed Postal Order of Rs. 15/- payable to the Finance Officer, Sambalpur University, Jyoti Vihar, Burla (b) a self addressed envelope (23 cm x 10 cm) with postage stamps worth Rs. 3.30p affixed to it with the words "APPLICATION FORM FOR TEACHING POSTS IN SAMBALPUR UNIVERSITY' superscribed on it. Money Order/Cheque will not be entertained.

The last date for receipt of applications in the Office of the Sambalpur University is **23.7.1981**. The candidates will be required to appear before a Selection Committee for interview at their own expenses alongwith the mark-sheets and certificates in original in the University office at Jyoti Vihar.

Issue of this advertisement does not make it binding on the part of the University to make the appointment.

All communications should be addressed to the Registrar by designation only.

REGISTRAR

THE UNIVERSITY OF BURDWAN

RAJBATI : BURDWAN
West Bengal
Advertisement No. 1/81-82
Dated, 13th July, 1981

Applications in the prescribed form are invited for the two posts of Lecturer in Law in the approved scale of pay of Rs. 700-40-1100-50-1600/- with allowances and other benefits according to University Rules.

Minimum Qualifications

(a) A doctor's degree or published research work of an equally high standard and
(b) Consistently good academic record with first or high second class (B in the seven point scale) Master's degree in the relevant subjects or an equivalent degree of a foreign University.

Desirable Qualifications

Specialisation or Proficiency

First post with specialisation in Labour Laws/Laws of Procedure.

Second post with specialisation in Property and Land Laws/International Law.

The University Council may on recommendations of the appropriate Selection Committee, waive any of the requirements in view of the candidates specialised knowledge in the subject. The choice of the Committee may not necessarily be confined to those who apply formally.

For application form and other information apply to the Registrar with self-addressed stamped (0.50p.) envelope (9" x 4").

Last date for submission of application with requisite fee of Rs. 5/- is **31st July, 1981.**

A.K. Chaudhari
REGISTRAR

NOTIFICATION

ADMISSION FOR M. TECH. DEGREE COURSES AT COLLEGE OF ENGINEERING, ANANTAPUR AND KAKINADA DURING 1981-82

Admission to the above courses for the academic year 1981-82 will be made as per the Presidential Order in G.O.Ms. No. 453, Edn., Gen. Admn. (SPF-B) dated **3-7-1974** and as amended in G.O.Ms. No. 1186 Edn.(C) Department, dated 10-12-1976.

Applications are invited from Indian Nationals for admission to the following M.Tech. courses in the University Constituent Colleges as shown below, so as to reach the Principals of respective Colleges by post or otherwise on or before 5.00 P.M. on **3.8.1981**.

1.	M.Tech.	Civil Engineering—Structural Engineering	at College of Engineering, Anantapur-515002
2.	M.Tech.	Electrical Engineering—Power Systems	
3.	M.Tech.	Mechanical Engineering—Refrigeration and Air-conditioning	
1.	M.Tech.	Civil Engineering—Soil Mechanics and Foundation Engineering	at College of Engineering, Kakinada-533003.
2.	M.Tech.	Electrical Engineering—Power Systems (with emphasis of High Voltage)	
3	M.Tech.	Mechanical Engineering—Machine Design (with emphasis on farm Machine Design)	
4.	M.Tech.	Electronics and Communication Engineering—Instrumentation and Control Systems	

Admissions will be made on the basis of marks obtained in B.E./B.Tech. Examinations.

Application form and prospectus can be had on requisition from the Principal, College of Engineering, Anantapur-515 002 for the courses at Anantapur and from the Principal, College of Engineering, Kakinada-533 003 for the courses at Kakinada, enclosing a Demand Draft for Rs. 5/- drawn in favour of the Registrar, Jawaharlal Nehru Technological University on any scheduled Bank payable at Hyderabad and also a self addressed and stamped (Rs. 2/-) envelope of size 10 cm x 22.5 cm. Remittance by Postal Orders, Money Orders, Cheques or Cash will not be accepted.

Applications received in person or by post after the due date and time will not be accepted.

Sale of applications will commence from **6.7.1981**

Last date for sale and receipt of filled-in applications by the Principal concerned **3.8.1981.**

REGISTRAR

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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH AUGUST 1, 1981

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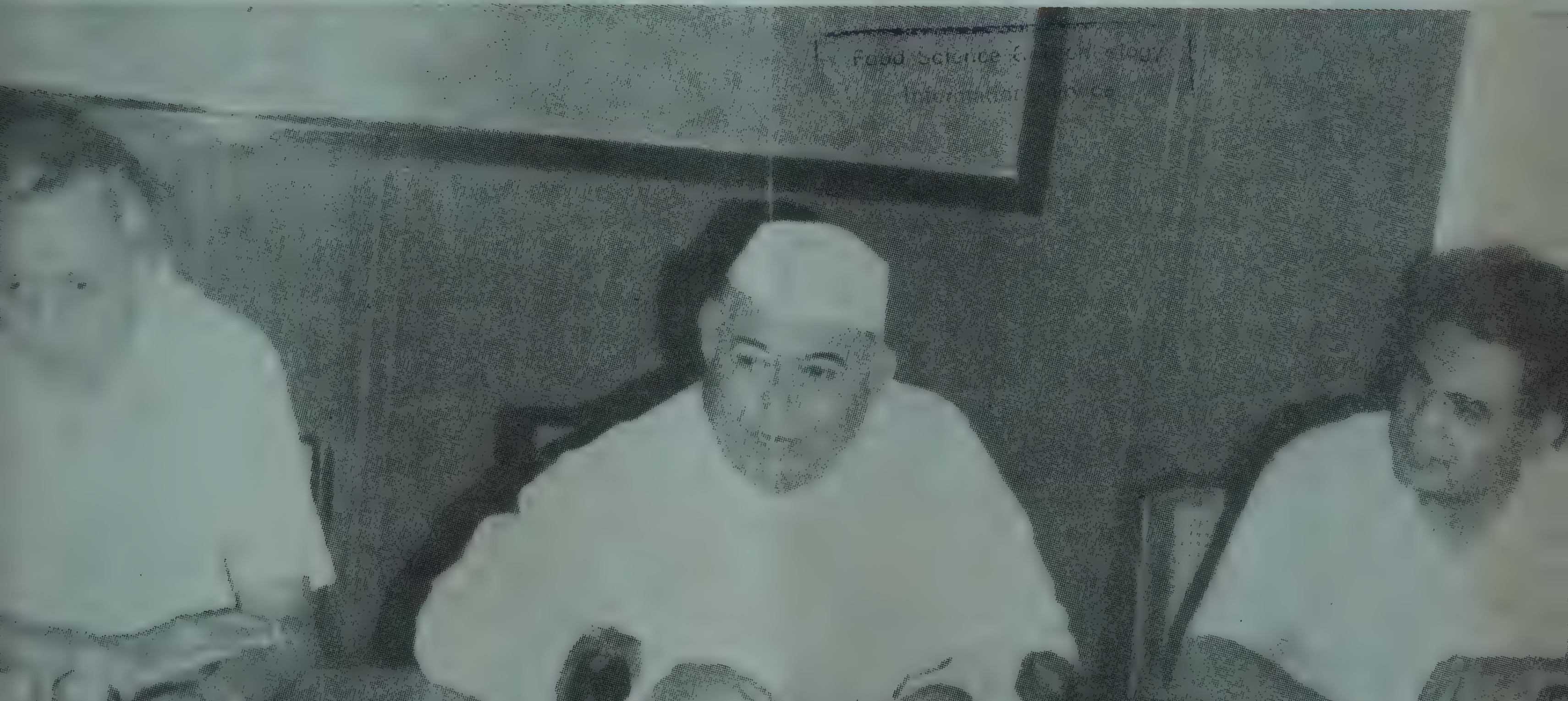
17 SEP 1981
C.F.T.R.I., MYSORE



Prof. Nurul Hasan, Vice-President, CSIR, inaugurating the orientation programme in educational planning and administration for college principals organised by the NIEPA in New Delhi.

ASSOCIATION OF INDIAN UNIVERSITIES PUBLICATION

CLASSIFIED ADVERTISEMENTS

NORTH-EASTERN HILL UNIVERSITY

Lower Lachaumiers, Shillong

Admission Notice 1981-82

Campuses : Shillong/Kohima/Aizawl

Applications are invited for admission to the following programmes of study and research in the three campuses of the University:

1. **Shillong Campus**

   MA/M.Sc./M.Ed. : English; Economics; History; Political Science; Sociology; Anthropology; Philosophy; Geography; Botany; Zoology; Bio-Chemistry; Chemistry; Physics; Mathematics. For M.Ed. only evening programme.

   M.Phil. : English; Economics; History; Political Science; Sociology; Anthropology; Philosophy; Mathematics; Education.

   Pre Ph.D./Ph.D. : Economics; History; Sociology; Anthropology; Philosophy; Botany; Zoology; Chemistry; Physics; Mathematics.

2. **Kohima Campus**

   MA/M.Com : Education; English; Commerce.

3. **Aizawl Campus**

   MA/M.Ed : English Economics; Education.

4. **How to Apply** : Application forms together with Information Guide may be obtained from the University Office (Admission Cell) Shillong/Kohima/Aizawl on payment of Rs 6.00 (Rupees six), in cash or by sending I.P.O. drawn in favour of N.E.H.U. together with a self addressed envelope of 28 x 16 cm. in size with Rs. 2.20 stamp affixed thereon.

5. **Eligibility to Apply**

(a) M.A./M.Sc./M.Com : A Bachelor's Degree, preferably with Honours. Pass candidates are also eligible to apply.

M.Ed. : At least a second class bechelor's degree in Education or teaching.

(b) **M.Phil.** : At least a 'B' grade or 55% marks in the qualifying examination relaxable by 5% for Scheduled Caste/Tribes and for College teachers.

(c) **Ph.D.** : Normally an 'A' grade or 60% marks in the first semester examination of the M.Phil. Programme or satisfactory performance in the Pre Ph.D. test.

6. **Reservation of Seats for SC/ST candidates** : 40% of the seats are reserved for candidates belonging to the SC/ST in each programme of study. All SC/ST candidates who have passed the qualifying examination irrespective of the percentage of marks are eligible to apply for admission.

7. **Hostel Facilities** : In view of the limited number of Hostel seats admission to a programme of study would not automatically entitle students for allotment of hostel accommodation. However, all students who desire accommodation are advised to submit their applications for hostel seat along with their application for admission to Departments.

8. **Note**

(a) Candidates wishing to apply for admission to more than one discipline should fill in the AIBs in order of preference.

(b) Candidates who have appeared in the respective qualifying examination this year and whose results are awaited may also apply for provisional admission subject to their securing the requisite percentage of marks. They should, however, submit the attested copies of the certificates as soon as the results are published, failing which the application would automatically stand cancelled.

(c) Applicants should note that fulfilment of minimum eligibility conditions do not entitle him or her to be called for test/interview. In view of the limited number of seats in each programme the number of candidates to be called for test/interview will be determined by the number of applications received.

(d) For other information, reference may be made to the Information Guide or the Admission Cell of the University.

(e) The University follows the Semester system of teaching and evaluation which requires a minimum of 75% of attendance for appearance at the End Semester Examination.

9. **Last date**: Application Forms duly filled in together with all supporting documents should be mailed to the respective Heads of Departments so as to reach on or before the **10 August 1981**.

Mrs. M.R. Mawlong
REGISTRAR

ANDHRA UNIVERSITY

WALTAIR

Advertisement No. 1/81

Applications in the prescribed form are invited for the following posts so as to reach the Registrar, Andhra University, Waltair on or before **17.8.1981**. Each application shall be accompanied by a Bank Challan receipt of Rs. 10/- (Rupees ten only) remitting the amount in the State Bank of India to the credit of Andhra University General Account (ORDINARY) towards the Registration fee for the application. Candidates residing outside Andhra Pradesh, should remit the registration fee by M.O. or Demand Draft in favour of Registrar, Andhra University and send the M.O. receipt along with the application.

Department/Subject	Professor	Reader
1. Economics/ State Bank Chair in Development Banking	1	—
2. Physics/Space Science	1*	—
3. Chemical Engineering	1 + 1*	1*
(*) Temporary	(Refinery Engg. + Corrosion Engg.)	(Energy Engg.)

Scale of pay

Professor : Rs. 1500-60-1800-100-2000-125/2-2500
Reader : Rs. 1200-50-1300-60-1900.

The details of qualifications prescribed in respect of the above posts including the particulars and precise branch of specialisation which is needed and also the preferential qualifications considered desirable will be furnished along with the application form.

Requisition for the application forms may be made to Sri P. Hanumantharao, Joint Registrar, Andhra University, Waltair accompanied by a self addressed and stamped envelope and a State Bank of India Challan for one Rupee. Candidates residing outside Andhra Pradesh may, however, obtain the applicaton form by remitting one rupee by M.O. or Demand Draft in favour of the Registrar, Andhra University, towards the cost of application form and send the M.O. receipt along with the requisition for application form. Postal Orders will not be accepted. The University reserves the right to fill or not to fill all or any of the posts. The cover containing the applications should be superscribed as "APPLICATION FOR APPOINTMENT TO THE POST OF.................... Persons already in service should send their applications through proper channel. Applications received after 5.00 P.M. on the due date will not be entertained.

M. Gopalakrishna Reddy
REGISTRAR

UNIVERSITY NEWS

VOL. XIX AUGUST 1
No. 15 1981

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Editor : ANJNI KUMAR

Educating Weaker Sections

S.C. Dube*

The framers of the constitution consciously adopted a policy of compensatory discrimination in favour of the Scheduled Castes and the Scheduled Tribes. Through reserved constituencies they were assured adequate representation in parliament and state legislatures. They were to have reserved quotas in educational institutions and public services. Supplementary funds were to be earmarked separately for their rapid development. In the field of education they were also to get special financial support by way of scholarships and other facilities. The position was to be reviewed after a stipulated period of time with a view to either extending or terminating these protective measures and concessions.

The intention behind this strategy was honest; it was aimed at undoing some of the consequences of centuries of neglect and exploitation that these people had to suffer and at enabling them to compete on the basis of equality, in a decade or two, with more advantaged groups. Faulty planning and unimaginative implementation have, however, defeated the objectives that the founding fathers had envisioned.

Except for a miniscule section, these groups have registered little advancement economically, socially or culturally. There are reasons to believe that their position has actually worsened; undeniably, most of them occupy the lowest rungs of the social ladder even among those below the much-talked about poverty line.

In the meantime there have been fundamental changes in the social and psychological environment. In consequence, the culture of poverty of these sections is no longer also a culture of silence. With their new-found voice the Scheduled Tribes and the Scheduled Castes have questioned the ritualistic development programmes that bring them only notional benefits.

As their fight for equity and justice acquired a degree of militancy, the society threw away its mask of benevolence and retaliated with terror and tyranny. Their houses were burnt, women raped and all sections of them were subjected to unprecedented cruelty and even torture. The reservations policy, which appeared to enjoy national support for a quarter of a century, became the subject of a fierce controversy and debate. Today massive retaliatory movements are being mounted by both sides, adding a new dimension to the deteriorating law and order situation and posing a threat to national integration.

The problem is indeed complex. It defies superficial treatment or simplistic solutions. Development

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**Former Vice-Chancellor, University of Jammu.*

effort over three decades has largery gone waste because of wrong priorities, ham-handed implementation and misdirected effort. Educationally both the Scheduled Tribes and the Scheduled Castes have only marginal gains to boast of.

The poorest and the neediest among them do not figure among the beneficiaries of the gigantic educational effort made by the country. Whatever little education they have received has been largely dysfunctional and has uprooted its recipients from their traditional moorings, without equipping them adequately to join the emerging socio-economic mainstream of the country.

Despite the howls of protest against job reservations for them, the weaker sections continue to be grossly under-represented in the public services both in the states and at the Centre. If the convoluted logic of the anti-reservationists is to be accepted, the *Harijans* and the *Girijans* would be doomed to a life of perpetual penury and serfdom.

In the belief that education is a great mobility multiplier, special incentives by way of scholarships and reserved quotas in educational institutions were provided for both these sections. The goal of equalisation of educational opportunity was adopted for all weaker sections of the community, especially the Scheduled Tribes and the Scheduled Castes. The results of this policy, during the last three decades, have been disappointing.

Genuine equalisation of opportunity still remains a distant ideal. For an overwhelmingly large part of the Scheduled Castes and the Scheduled Tribes population the structure of economic opportunity continues to be as bounded and closed as before. Who is to blame for the lack of results? Are the Scheduled Tribes and the Scheduled Castes inherently incapable of taking advantage of the equal opportunities extended to them? Or have we to search for inadequacies and deficiencies in planning and pedagogy employed for the educational advancement of these sections?

For the Scheduled Castes and Scheduled Tribes, as indeed for all children of poverty, reserved seats in educational institutions and financial support do not constitute equal educational opportunity. Because of the harsh realities of their life many of them start losing the battle for high educational attainment in the pre-school entry years of their lives.

Nutritional deficiencies, both in terms of calories and protein, cause varying degrees of mental retardation. The educational system has no control over this situation and the damage is often irreparable. The Scheduled Castes more than the Scheduled Tribes are the victims of this initial handicap.

The first step towards equalisation of educational opportunity, thus, lies in improving the dietary intake so that the children entering school do not start with a disadvantage. These efforts will have to be sustained during the first three or four years of their schooling.

The transplanting of the Scheduled Tribes and the Scheduled Castes children to the new ethos of the educational institutions also poses some serious problems. By sending a child to school, the family loses his or her contribution, howsoever small, to its economic activities. The aims of education are never made explicit. Experience suggests that the kind of education that is imparted in schools and colleges alienates the learner from his family and community.

The schools themselves leave much to be desired. The teacher often has to handle a number of classes, with only some of the crudest tools of the trade available to him. He is saddled additionally with a number of other responsibilities also.

The truancy of teachers in remote tribal schools is notorious. The atmosphere at the school is rarely propitious for learning. Alongside in different teaching the Scheduled Tribes and the Scheduled Castes students have to suffer many forms of invisible and visible discrimination and humiliation.

The tribal student is often taunted for being more like a jungle animal than a human being. The Scheduled Caste student carries with him the stigma of his low and impure birth. Their curiosity and scholarly ability notwithstanding, they rarely get equal treatment with those of their classmates who have a higher ascribed status. The situation in the school is thus weighted against them.

Many of them naturally get discouraged and drop out. It is a miracle that some of them transcend these barriers and give a good account of themselves.

Three durable myths colour our thinking about the educational prospects and possibilities of the children drawn from the culture of poverty. First, their cultural ethos emphasises the concrete and consequently their capacity for abstract thinking is low. Second, their verbal articulation, both in speech and writing, is poor. Third, they are deficient in mathematical reasoning

Each of these assumptions can be refuted. The tribal child has a much better comprehension of his environment. He can read messages in the skies, in the waves and in the winds. Abstract notions are not alien to him if they are firmly rooted in his cultural universe. This is true also of the Scheduled Caste child.

The real difficulty lies in poorly developed mechanisms for cultural translation and for adapting the abstract idiom of an unfamiliar ethos. The assumption about their limited verbal skills, again, is founded on misinformation and faculty interpretation. It ignores the cultural context of communication. Situations determine the form and extent of articulation.

It would be useful to recall Chomsky's brilliantly argued theory that a child enters the world with certain innate ideas, including a mental representation of a universal grammar which enables him to learn a language at a very early age. This he does before establishing mastery over simple behavioural skills.

Pedagogy, as practised with these groups, fails to utilise the potential of this language as a tool of learning. Mathematical reasoning also is not absent; the trouble lies in grasping its alien symbol system. Let it not be forgotten that pre-literature primitives, in the past, have performed great mathematical feats.

The fault does not lie with the Scheduled Tribe and Scheduled Caste children, it lies with the misapplication of established pedagogic principles to a situation which they cannot cope with. Ritualism in planning and implementation accounts for the disappointingly low returns for massive financial inputs in the endeavour aimed at the educational advancement of the Scheduled Tribes and the Scheduled Castes.

The strategy of education for the scheduled tribes and castes, adopted during the last three decades, has yielded extremely limited results. Its principal beneficiaries were the children of the thin upper crust of these communities. Education to them was an instrument to reinforce their elite status and consolidate their gains.

Judged purely by economic criteria, this section could have done without the protective and compensatory measures. The calculous of power, however, makes it impossible to withdraw the advantages enjoyed by them. This need not cause any alarm because those enjoying this extra benefit, in the fields of education and public services, are very small in numbers and the financial outlays involved are insignificant.

What must worry us though is the stark reality that the most backward and the neediest among this section continue to suffer near-total neglect. For their benefit special incentives and innovative institutional mechanisms are urgently indicated.

Evidently the educational system cannot cater to the pre-school entry nutritional needs of the scheduled tribes and castes children. The relevant development sectors must attend to this need. But there is much that the educational sector can do to ensure the success of these programmes.

For one thing the educational experience should be made more relevant to the needs of these communities, the alienating effects of education should be controlled and the educational endeavour should be redesigned to provide a forward push to the weaker sections. The transition from their oral traditional culture to humanistic and scientific learning should be made easy and smooth. The culture shocks that are implicit in it at present should be cushioned to minimise the possible damage.

For the *Harijans* and *Girijans*, the existing pedagogy has to be substantially renovated and fortified with meaningful innovations. Equal access to educational opportunity does not mean equalisation of educational opportunity. First, the incentives provided are not adequate for the poorest of the poor; even with the available financial support not many of them can pursue higher studies.

Secondly, true equalisation of educational opportunity will have been achieved only when relative to their proportionate strength in the population, children belonging to this section reflect levels of achievement comparable to those of the more advantaged sections of society. This constitutes the crux of the problem and is the most critical area for reflection and action.

It is amazing that our pedagogic institutions have not responded creatively to these challenges. There is almost no emphasis in the teacher training programmes on the special needs and problems of first and second generation learners. Thus, the pedagogy in vogue is inappropriate for all the weaker sections of the community, more so for this section. Despite the advice of higher authorities we have not succeeded in evolving a pattern of elementary education which is truly environment-based and craft-oriented.

No satisfactory mechanism exists to pick up promising material for secondary and higher education. The vocational stream added to the secondary sector of education remains weak, especially for tribal groups and rural areas. Subjects like forestry, horticulture, rural industries and their management do not figure in the course offerings. These could have opened up employment opportunities, including self-employment, to the scheduled tribes and castes youth.

The most important component of the new pedagogy would be the evolution of a system in which learning takes place in an atmosphere of understanding and sympathy.

To be able to induct the scheduled tribe and caste students into the contemporary universe of dialogue, the teacher must understand the basic cultural patterns in which the children from these sections of the population are initially socialised. The task of cultural translation in this context assumes a critical significance.

Verbal articulation can be developed through situations of group interaction to which these children are accustomed by tradition. Mathematical reasoning can be sharpened through well-planned exercise that move from the concrete to the abstract. All this would demand extra reserves of patience, understanding and sympathy on the part of the instructor.

The normal school day could be divided into three parts—one-third to be devoted to formal instructions, one-third to group activity consisting of team endeavour learning processes and skill sessions and the remaining third to guided self-study. For higher education, imaginative programmes of anticipatory and preparatory education as well as of remedial and supplementary education will have to be devised.

This calls for a high degree of imagination and commitment. The prototype must be evolved imaginatively, tested carefully and extended discriminatingly. Unless this is done, the effort will be self-defeating. The dropout rate of the scheduled tribes and castes children will continue to remain high and the levels of their performance will remain low. This would be a great national waste and the attainment of the ideal of an egalitarian society will remain a dream □

Autonomous Colleges

M. A. Thankaraj*

Of all the innovative programmes in higher education initiated by the University Grants Commission during the past decade, the promotion of Autonomy for affiliated colleges is bound to have the most profound and far-reaching consequences for higher education in India, for good or ill, depending on how it is implemented. From the way that certain types of questions are raised regarding College Autonomy, it is clear that there is much misunderstanding about the kind of Autonomy, that is contemplated, and much misgiving about the ability of the faculty members and the principals of our affiliated colleges to implement it successfully.

Let us first recall briefly why there is need for granting Autonomy to affiliated colleges and what kind of Autonomy is contemplated.

Why autonomy?

The University Grants Commission, in its booklet "Autonomous Colleges: Criteria, Guidelines and Pattern of Assistance", pleads very powerfully for granting academic autonomy to affiliated colleges. It says: "All attempts at reform of University education in the way of curriculum development, changes in the system of Examination, promotion of research and its subsequent feedback into the teaching process have tended in the last few years to get defeated by the existing rigidity in the structure of Universities, particularly because of the absence of academic autonomy of the institutions... The system of affiliation and mass examination, with all their backwash effects have not only distorted the learning process but have created enormous social problems in the way of corruption, terrorism and violence in the conduct of Examination.... In the case of the better colleges which have both the resources and the determination to do quality teaching, the control of the University in matters of curricula and examination has curbed all initiative and imposed a rigid structure of courses and examination. Such colleges feel that the affiliating system has prevented all their efforts towards modernization and improvement."

There are other important reasons advanced as to why affiliated colleges should be given academic autonomy. One is, that teaching, learning and evaluation is a trinity of academic functons which, to be effective, should be carried out by the same persons. In the present affiliating system, the teachers teach a currculum prescribed by some other body, and prepare their students to be examined by yet another body which has never met them, but which presumes to evaluate their attainment entirely through the medium of the written word, usually in an alien tongue. The teacher has responsibility neither for the course he teaches nor for the evaluation of the student he trains. His motivation is understandably very low.

Another reason is that the changing needs of society can be met promptly and effectively only in a decentralized system. The affiliating system is centralized and monolithic. It would be easier for an autonomous college to respond to local requirements of skilled manpower than for a university with large territorial jurisdiction.

Dr. Shankarnarayan, writing in the *New Frontiers in Education says*: "The present spectacle of a number of colleges taking easy refuge under the University umbrella, irrespective of the quality of instruction provided by them, redounds to the credit of neither the parent university nor the colleges... Each college should be allowed to stand on its own and make a gallant effort to justify itself through self-regulation, and self-discipline and a tireless pursuit of excellence' and thus start a movement towards change, greater purposiveness and diversification and modernisation so that instead of standards gravitating to the bottom, there would be some hope of a new dynamism operating and fulfilling itself in the conscious effort for improvement of standards".

What kind of autonomy?

The autonomy contemplated is academic: the college would have freedom to frame its courses of studies, to devise its methods of evaluation and its principles for admission of students, while the university will continue to confer the degrees upon successful candidates, accepting the evaluation done by the autonomous college. Autonomy is not conferred once for all, but will have to be continually earned and deserved. The status will be initially granted for five years, but at the end of three years a review should be undertaken by the university and UGC in collaboration in case of evidence of deterorating standards, it would be open to the university to revoke the autonomous status.

**Former Principal, American College, Madurai.*

Let us remember that the affiliating system did serve a useful purpose in the early days of the development of higher education in India during the last century when the Government could not, or would not, establish institutions of higher learning in required numbers, and when private bodies, particularly Christian missionary bodies, were able and willing to establish colleges and staff them with eminent, educationists. The number of affiliated colleges in those days was relatively small and in any case those colleges had a large measure of freedom in determining the curriculum and the teaching and evaluation methods. With the phenomenal increase of colleges during the past 30 years some with no clear goals or objectives, and others with very little resources by way of personnel or finances—the system has introduced many distortions in higher education. The best way of correcting the situation seems to be to give autonomy to any college which is ready for it and is found to be capable of implementing it successfully.

However, granting autonomy to colleges is not going to solve all the problems of higher education. In fact, it is likely to create a few problems of its own, such as, fears about the "absolute powers" given under autonomy to the managements, the administration and the teacher, doubts about its acceptability by students and the public, the question of "elitism", varying standards within a university, and so on. We shall deal with them now.

Some issues

Teachers' Unions in some Universities have opposed autonomy for affiliated colleges on the ground that this would give managements of colleges absolute power over their staff and that they would interfere with the service conditions of their staff arbitrarily and unilaterally with impunity. It can be said at once that this fear has no basis whatever. The autonomy contemplated does not introduce any change in the powers of the management or in the privileges of the faculty. Autonomy is only for academic and related activities of the college—the freedom to innovate and to experiment in regard to curricula, teaching, examinations and student services. It does not change the service conditions of the staff members. Therefore, the staff-management relation will remain unaffected by autonomy. Where these relationships had been strained, autonomy might help to expose it, thereby bringing the solutions nearer.

More serious and genuine are the fears expressed by many students and parents that under autonomy the course-teacher wields enormous power through continuous assessment, end-of-semester examinations, practical work, etc., and that he might misuse the power out of prejudice or favouritism. These fears are very real and every autonomous college should take special steps to dispel them.

One effective method is to make all assessment procedures open, and make provision for appeals.

When a test is held, the marks should be put up on the notice board as soon as the scripts are valued (preferably within 5 days of holding the test) and the answer scripts returned to the students for scrutiny. If a student is not satisfied with the marks awarded, he may approach the teacher concerned for clarification. If there is difference of opinion he can appeal to the Head of the Department who shall appoint an Appeals Committee consisting of the teacher concerned and another member of staff of the Department, with himself as the Moderator, and review the paper. The fact that a Committee may review his valuation would make the teacher careful in his marking and inspire confidence in students and parents.

This procedure should be given wide publicity so that all fears of victimisation may be dispelled.

Some apprehensions were expressed in some quarters that the degrees granted by an Autonomous College may not be recognised by other Universities and employing agencies, and that because of this fear the student strength may go down drastically when a college becomes autonomous. Facts have proved that this fear also is groundless. Selection of a college for Autonomy is a kind of public recognition by the University and UGC of the "consistent good performance" of the college, which is one of the criteria for selection. Naturally students and parents would prefer such a college to a mediocre one.

However, it is advisable for Autonomous Colleges to take special precautions to create confidence in the public mind about the maintenance of high standards in their courses and curricula, and the integrity of their assessment procedures. This can be done by associating experts from the University and other bodies on their Boards of Studies and on the Examination Boards, and by giving wide publicity to their admission and assessment procedures and rules and regulations.

There was some opposition to College Autonomy based on the fear that selection of some colleges for autonomy would create different categories of colleges, elite and nonelite. But it is a fact that these categories already exist. Everyone knows that the quality of colleges varies widely within the same university. No one can demand that every college should be like every other college. If one does it could only be for the purpose of providing a cover for the bad ones. Selection of a College for Autonomy is merely a public recognition of this obvious fact that some colleges are better than others. There has been a lot of confusion in the use of the word 'elitism', which has been used to denote both 'acquisition of privilege' and 'search for excellence'. One of the noble aims of education is search for excellence, and no college needs be ashamed of being called an 'elitist' institution in this sense. However, the categorisation of colleges into elite and nonelite can never be on a permanent basis. Every college is free to strive towards academic excellence, in fact, one of the purposes of autonomy for colleges is to ensure this continual striving.

Several educationists who had welcomed the idea of autonomy for colleges have criticized the way it has been implemented, namely, the university selecting a few colleges here and there and offering them autonomy, seemingly as a 'reward' for good performance. Instead, they suggest that the university should merely lay down criteria and offer autonomy on those terms to any college which is prepared to accept the challenge, satisfying the criteria laid down in regard to personnel and facilities. "The University should function as an accreditation agency to check on satisfactory performance in regard to maintenance and improvement of facilities, professional growth of the teachers, quality of innovation in curricula, teaching and examination, and service to the community". Prof. Shankarnarayan suggests; "It may be desirable that no college should remain affiliated to a University for more than an initial period of five years, during which period the University should help in development of the college concerned, both with a view to preserving and enhancing diversity and encouraging each institution to offer the best possible education to its students with the most rational and efficient use of the available resources. If the colleges were left free to work out their salvation in diligence, they would put forth greater effort, win recognition, or else go down because of their inefficiency. This would help the institutions to find their own levels and either become accepted by students, teaching community, professional bodies and the society in general, or get rejected out of existence"*.

Present position

Though the Education Commission under the Chairmanship of Dr. D.S Kothari had recommended (1966) that by the end of the Fourth Five Year Plan (1972) at least fifty of the best colleges in India should be brought under autonomy, nothing was done either by the governments or the universities to implement this recommendation. In 1972, the Central Advisory Board of Education had recommended that "the programme of autonomous colleges should be vigorously implemented and that at least 5% of the colleges (200) should be made autonomous by the end of the 5th Five Year Plan" (1979). In the meantime, a few progressive colleges in the country had conducted self-study projects on their own, identifying their strengths and weaknesses, and preparing perspective plans for their development. The American College in Madurai actually prepared a blue-print for Autonomy over a period of two years, the faculty members meeting department-wise as well as in full faculty sessions several times, to finalise the proposal, spelling out the details of the courses, the administrative structures such as Academic Council, Boards of Studies and of Examination, Admissions Committee, Appeals Committee, Evaluation procedures, staffing pattern, work load, and so on, which they would have if offered Autonomy. Their detailed proposals under the title "Autonomy for American College", finalised in 1972, were sent to the parent University, the UGC and the State and Central Governments. The UGC which had already been urging the Universities to identify some colleges within their jurisdiction which were ready for autonomy promptly accepted these proposals and requested the University to (a) obtain from the college a 5-year proposal incorporating their original plan, but spelling out, year by year, the courses to be offered, the staffing pattern and financial implications; and (b) amend the University Act to make provision for Autonomous Colleges in it. (Most University Acts provide only for constituent and Affiliated colleges, but not for Autonomous colleges). The Tamil Nadu State Legislature took three years to pass the necessary amendment, in August 1977. In the meantime, the Vice-Chancellors of the Madras and Madurai Universities had invited several other colleges to prepare Autonomy proposals, and after the expert Committee from the UGC had visited the colleges and held talks with the managements and faculty members, the autonomous status was conferred on twelve colleges in the State of Tamil Nadu from the year 1978-79. Of these, eight are in the Madras University and four in Madurai University, including two Women's Colleges, one of them, Sri Parasakti College, Courtallam, being a Rural College.

The background to the "historical" event of the introduction of Autonomous Colleges in Indian higher education has been given in some detail with a purpose. It highlights some of the reasons why such an important recommendation of the Education Commission took 12 years to be implemented, and that too in a very small way. For one thing, no one seemed to know how to go about it or who was to take the initiative in the matter. For another, most State Governments were, and still are, very reluctant to take the revolutionary step of giving affiliated colleges such sweeping 'powers', lest they be misused. Some Universities feared that if the best colleges under their jurisdiction were given autonomy and were thus "lost", they would be left with only mediocre colleges. Moreover, unless the teachers in a college are able and willing to undertake the responsibility that autonomy would bring, and are willing to initiate action for the purpose, that college cannot successfully implement autonomy even if it comes.

Most people who oppose autonomy for colleges, when questioned closely, would admit that their objection is to the teacher being in charge of the final examination which determines the student's future. Even parents who are willing to entrust their children's intellectual training, formation of character, and personality development to the teacher, would not trust him with the final examination. This almost pathological fear of the misuse of the final examination is a measure of the importance the final examination has assumed over the other far more important aspects of education, such as training of the mind, formation of character, and so on. And this in spite of the fact that most people are well aware of the many defects and unreliability of the single final examination, often written in a foreign language, as a means to testing the student's intellectual attainment. The obvious corrective is to introduce the system of continuous assessment, building in checks to prevent its misuse as explained earlier, and to associate an external examiner with the course teacher in conducting the final examination, in order to make the latter more reliable and acceptable. The teacher who teaches the course is also the most qualified person to evaluate the students, understanding; and the teacher who is entrusted with the training and development of the student should also be trusted to evaluate him honestly.

The fear of the Universities that they would 'lose' the best colleges when they are granted autonomy, is groundless. The Universities will have supervisory powers over the autonomous colleges; they would continue to award the degrees for their graduates; and the autonomy can be revoked by the University if it is misused or if the standards go own.

Ultimately, it is the teacher's role that is going to be crucial in the introduction and successful implementation of autonomy for the college. The teachers are the backbone of any college, and no new plan can be successfully implemented unless the entire faculty—or, at least a large majority of it—is wholeheartedly committed to the plan. Therefore, it is imperative that the teachers are convinced about the need for autonomy for their college, and are associated with the thinking and planning for autonomy from the very beginning, so that they have a sense of involvement in the decision-making process at very stage.

A good place to start is to have a self-evaluation programme for the entire faculty, meeting Department by Department, and coming together in plenary identifying as realistically as possible their own strengths and weakness making tentative plans for the future, based on that realistic appraisal. When going through this exercise, it would be good to keep before each member the question "Why do I want autonomy? What can I do under autonomy which I can't do now? How can I use the freedom that autonomy gives me to make my course interesting and relevant to the needs of the community?".

It must be remembered that Autonomy demands a complete change in orientation and outlook from the teacher. Under the affiliating system, the teacher's role was secondary; he taught what was prescribed by the Board of Studies, and merely prepared his students to be evaluated by other persons. But under Autonomy his role becomes primary and crucial. He has to develop the courses he has to teach, prepare the material, prescribe reference books, and devise appropriate evaluation techniques; the entire responsibility is his, and he has the freedom to adopt any methods he chooses for achieving his goals. This places a great responsibility on every teacher in an autonomous college, to keep abreast of his special subject, to be in touch with the latest developments in teaching methods and evaluation techniques, and to prepare himself emotionally to be in complete charge of a portion of the academic programme of his college, including taking final decisions on certain important academic and administrative matters.

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It is here that most people have serious misgivings about the competence of most of the teachers in our colleges today to shoulder the responsibility that autonomy would place on them. However, there must be at least a few hundred colleges among the 4600 that exist in India today in which the majority of staff members are competent and committed to quality work. It is these colleges which should prepare themselves for autonomy and initiate action that would enable the parent University to confer the autonomous status on them in the near future.

Conclusion

The creation of Autonomous Colleges is a significant new experiment in higher education in India on the success of which the entire fabric of Indian higher education may well depend. A few years ago an eminent Indian educationist said: "I give Indian higher education ten years. If nothing is done within that period to make it purposeful and relevant to society's needs, the entire system would collapse under its own weight of purposelessness. However, the creation of Autonomous Colleges may be the one factor which may save the system from collapse".

College Autonomy is intended to give to some of the best colleges in the country freedom to experiment with new and innovative methods of teaching, learning and evaluation, to offer interesting new courses which would be relevant to society's needs, to train the mind, to import skills and to mould the character of students in such a way that motivated men and women of skill and character would come out of this new kind of institutions. The autonomous colleges have a great responsibility to do their utmost to fulfil these noble expectations. Colleges which are preparing themselves for Autonomy have an equally heavy responsibility to equip themselves with all the resources necessary to make this crucial experiment in higher education a signal success. ☐

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News

Restructuring of Courses for General Education Colleges

S. M. Chanda*

It admits of no doubt that education, if it is to be real, should have roots in the environment. It seeks to change the environment and, in turn, is influenced by the changes that take place around us. The absence of this interaction between education and society results in imbalance. Modernization of our education system is required so as to bring it close to the needs and aspirations of the people for whom it is meant. An aspect of this urgently needed modernization is a restructuring of courses in our General Education Colleges.

There was a time when matters of engineering or technological interest were considered forbidden subjects for arts or science students. The tendency was to assume that the engineering and non-engineering disciplines, judged from the academic angle, were incompatible and as such the two should be kept widely apart. That theory has become obsolete and it is time for us to modify the conventional courses in "general education colleges" in such a way as to accommodate instruction in certain aspects to technological study within the framework of their curricula.

There are two important reasons why students of "General Education Colleges" should be encouraged to gain some knowledge of and taste for technological subjects. A problem causing worry to our planners is that we do not have a medium or middle level manpower which is required in a large measure to make our developmental strategy successful. A high-level trained man-power is not enough in itself; it needs to be backed by a medium-level trained man-power. In recent years the country has experienced, according to many reports, a shortage of essential middle-level technicians such as mechanics, plumbers, electricians, etc. Polytechnics and industrial training institutes are there in plenty in the country but their products are not so well equipped as to undertake such tasks. With a view to filling this gap, the Education Commission suggested some years ago that 30 per cent of our students at the + 2 stage should be trained in vocational courses. But attempts made so far in this direction do not seem to have yielded much substantial result.

The curricula currently being followed by our engineering colleges and technological institutes are by and large all designed to suit urban areas of well developed countries. Even in the urban sector of our economy, the undergraduates and the postgraduates in Engineering and Agriculture, far from being happy, feel frustrated on account of lack of job opportunities. They have no sense of attachment to rural areas and do not feel like devoting themselves to the work for transformation of rural India. Urban students take little interest in vocational courses involving manual skills, for they are considered not to have respectability on the social plane. This explains why vocational programmes have made little impact on the high school system in the country, in both the urban and the rural sector. Very few of the "Agricultural graduates" look for opportunities to work in rural areas. Even many of them who hail from villages do not want to go back to rural areas for professional work. It has been found that a large number of our engineers prefer staying in urban environment, even taking on jobs at an income level much lower than that which befits their training, to doing work in rural areas. One way of reversing this migration to urban areas is to direct 'General Education College' students to skill-oriented jobs, particularly in rural areas. We need students, in large numbers, to learn more about India's rural areas, to know more about the world around them, and to take training in crafts and skill-oriented jobs.

I feel that the curricula for 'General Education Colleges' should include the following subjects :

(1) Workshop Practice comprising, Carpentry, Electrical Wiring, Blacksmithy, Fittings and Welding
(2) Earth Science
(3) Dairy Development
(4) Public Health
(5) Home Management
(6) Principles of Management and Accountancy
(7) Technical Report Writing

The scheme, naturally, requires combinations of subjects to be offered to students to be more flexible than now.

It is obvious that one of the principal tasks for our educational planners, while designing courses for the 'General Education Colleges' is to fix our priorities:

(a) by framing such curricula and course contents as will be relevant to the environmental needs of the country;

(b) by providing such facilities as will help offering along with conventional courses some application-oriented courses;

(c) by offering opportunities to teachers to improve their functional ability. □

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CAMPUS NEWS

Prof Paul's stress on new teaching methods

Dr. R. C. Paul, Vice-Chancellor of Panjab University, said in Chandigarh that any restructuring of courses must result in the replacement of existing teaching methods which encouraged cramming and unintelligent reproduction. The new teaching methods should awaken curiosity in students and promote self-study habits and problem-solving skills. He was inaugurating the 11th principals' conference which was attended by 60 principals of colleges affiliated to Panjab University

Prof. Paul pointed out that the improvement of curricula and restucturing of courses should be governed by certain basic considerations outlined in the policy frames. These included modernisation, diversification, flexibility, social responsibility, relevance and inter-disciplinary approaches. There must be some component in the curriculum which required every student to make use of the library for reference work.

Dr. Gurdev Singh Gosal, Dean, University Instruction, emphasised the need for "structuring of education system and courses at the under-graduate level". He said the higher education system had an unjustifiably rigid structure. It did not cater to the special interests and needs of the individuals to the extent it should. It was a mass prescription. There was an immediate need for combining the academic component of courses with some sort of applied components suited to the real problems and work experience situations faced and felt in different regions and especially the rural areas of the country.

Later, the conference was divided into three sessions where principals presented papers on faculty improvement, student unrest and relations between colleges, university and the University Grants Commision.

Prof. Ghosh appeals to end imbalances in higher education

Mr. Sambhu Ghosh West Bengal Minister for Higher Education, said in New Delhi that the State Government had asked the Centre to appoint a commission to seek a national basis for expansion of educational facilities in the field of higher education. The State Government had already appointed a commission to recommend measures in order that regional imbalances in higher education were removed. There should be a similar attempt made by the Centre too, in respect of the whole country. Mr. Ghosh said that educational facilities had expanded to a considerable extent in West Bengal. It was felt that expansion of educational facilities should be on a rational basis. Location of the institution and the development of academic discipline must be judiciously determined. There was an organic linkage between various stages of education and each stage should be so designed as to fit in the next higher stage and the whole system together should take into account the long-range social needs and the existing local facilities.

Mr. Ghosh said an Advisory Committee of Vice-Chancellors had decided that a comprehensive study of the problems of growth in higher education in West Bengal should be formulated at least for the next 10 years so that higher education in the State could become meaningful and optimum in the context of the developmental programmes. Dr. Bhabatosh Datta, an eminent economist and educationist has been assigned the leadership in the said project. It has been further decided that new colleges would be set up only to remove regional imbalances and after district-wise examination of the present position of higher education in the State. It had been also decided that the standard of education at all levels should be improved and haphazard prolieferation of institutions should be stopped.

Chavan wants education to be kept away from politics

Mr. S.B. Chavan, Union Education Minister while addressing a meeting of the Parliamentary Consultative Committee attached to his Ministry, said in New Delhi that student unrest was based on matters not wholly connected with education. He said his Ministry was engaged in the formulation of a code of conduct for both teachers and students which would be applicable to all teachers and students right from the primary stage to the University. He sought the co-operation of all political parties in the country in implementing the code. He further said that education should be kept above politics to ensure discipline and a proper academic atmosphere in educational institutions.

Members of the Committee felt the educational system was declining and that if all political parties agreed to treat the educational field as sacred it would go a long way in bringing about salutary results. Some members said that education should be employment-oriented and that vocationalisation of education should start from the early stages. They felt that steps should be taken to end mal-practices like mass copying in examinations. The Minister informed that efforts were being made to reform the existing examination system by making it an integral part of the learning process. He further said that a proposal to strengthen selected university Libraries in one particular subject each is under consideration of the University Grants Commission. Referring to employment of Scheduled Caste and Scheduled Tribe candidates in various cadres in the educational institutions against the reservation quota, the Minister said that UGC had asked all universities to have a separate cell in each University to monitor the implementation of Government orders in this respect. Such cells were already functioning in the UGC and the Ministry of Education and Culture so far as higher education was concerned.

Curbs in academic bodies in Tamil universities

Mr. C. Aranganayagam, Tamil Nadu Education Minister said in Madras that the recently-promulgated Madurai Kamaraj University Amendment Ordinance, which restricted to two the number of terms a person could serve on the Senate and other bodies, was not politically motivated. He said many teachers associations had been demanding for a long time that such a restriction be imposed, since the same set of people got themselves elected to the various university bodies was not a very healthy trend from the viewpoint of the University. The Government, he said, had decided to introduce this restriction on membership of academic bodies in all universities. In respect of the new Coimbatore and Tiruchi universities the provision had been made in the Bill itself. For the Madras and Annamalai Universities, comprehensive amendments to the Acts were under contemplation and this would be drafted soon.

Iyer pleads for integration of science, law

Mr. Justice Krishna Iyer, President of the Indian Institute of Natural Law, said in Srinagar that integration of natural law, man-made law and modern science should be made to evoke the conscience of man for the well-being of mankind. He was addressing the two-day international conference on natural law, man-made law and modern science, organised by leading citizens of the state in collaboration with the Maharishi European Research University, Switzerland. Justice Iyer said it was unfortunate that while man was able to measure infinity he was unwilling and unprepared to discover himself. The problem for man today is that he is unable to land inside his own conscience. This was creating friction within him and this resulted in his becoming aggressive, which needs to be contained. He said there was need to validate the scriptures—Hindu Muslim and Christian to make him a "cool" man and help him regain balance, peace of mind and imbibe the great values of nature in him.

The conference was attended by top jurists, educationists, leading scientists from India, Europe and United State.

The Chief Minister, Sheikh Abdullah inaugurated the conference. He asked the scientists to probe deeper into nature and record and evaluate its structure and operations on subtler and subtler levels of refinement until they discover the subtlest level from which all the grosser and more obvious manifestations emanate. He said while mankind and science have taken great strides, this trend of progress has also had a commensurate negative influence, which not only had diminished the positive glow but in its ultimate form actually threatens the very survival of human civilisation.

NE regional office of UGC demanded

A ten member deputation of the All Assam Students Union and the All Tribal Students Union met the Union Education Minister, Shri S. B. Chavan, in New Delhi. They emphasised the need to have a regional office of the University Grants Commission for the north-eastern region. The deputation submitted a memorandum detailing the educational deficiency in the region. They argued that because of the distance, the educational institutions could not looked after properly and money allotted for the purpose often reached them when it is too late. The deputationists pointed out that the UGC should formulate schemes for the development of technical education on the basis of the resources available in the region. Specific references were made to the status of the Jorhat Science College and the Gauhati Textile Institute. It was pointed out that the Science College at Jorhat has not been able to contribute much in the field of the scientific education. It was suggested that if the objective of the college is to be achieved it should be raised to the level of the Indian Institute of Technology. The Assam Textile Institute is the only institution of the kind in the whole country. Now here certificates and diplomas are given. All such institutions in the rest of the country produce graduates. The upgrading of this institute has been further necessitated for producing personnel to manage the various units of the Bongaigaon Polyester Fibre unit of the Bongaigaon Petrochemicals. They also referred to the present financial crisis of the Gauhati University which is facing closure for want of funds.

Himachal starts several new programmes

The Himachal Pradesh University has plans to increase the number of seats for students seeking admission to different courses. Dr. L.P. Sinha, Vice-Chancellor of the university said in Simla that the university would take a number of steps to provide job-oriented education. Postgraduate classes would also be started in the university's evening college. The college has already postgraduate courses in Hindi and English. The university also proposes to start coaching programmes for various competitive examinations held by the Union Public Service Commission and the State Public Service Commission. These are in addition to the existing pre-examination classes for students belonging to Schdeuled Castes and Scheduled Tribes. There is also a proposal to establish training centres in banking, marketing and secretarial practice, Library Science. The Vice-Chancellor said that with the permission of the University Grants Commission the national adult education programmes have been undertaken by the university and a printing press would also be set up in the university very soon.

UP University Act amended

Mr. C.P.N. Singh, Governor of Uttar Pradesh, promulgated the ordinance limiting the term of office of nominated members of the executive councils of state universities from three years to two years. According to the ordinance which amends the UP State Universities Act, those members, who were nominated by the Governor in his capacity as the Chancellor of the state universities earlier would cease to be members, and fresh nominations would now be made. Most of the members who were originally nominated for a period of three years, are completing two years and they would now cease to be members.

The Governor through another ordinance amended the UP Agricultural Universities Act providing for the appointment of a Pro-Vice-Chancellor in Pantnagar University. The Pro-Vice-Chancellor would however be appointed by the Governor from amongst the deans of faculties, including the dean of the student welfare, directors of agricultural experiment station, extension and research and the professors.

Bio-medical engineering course at Osmania

The Osmania University will be introducing a new engineering course "Bio-Medical Engineering" at the University Engineering College from this academic year. With the introduction of this course leading to the degree of "Bachelor of Medical Engineering", after a study of four years following 'Intermediate". Andhra Pradesh would emerge as the first State in the country, to introduce a new subject among the Engineering electives.

Prof. Alladi Prabhakar, Principal, College of Engineering, Osmania University, had recently visited various universities in U.S.A. He feels "Bio-Medical Engineering" was in heaviest demand in the United States, both in the Government and industry. The object of the course was chiefly to train professional engineers with a good background in clinical sciences to enable them to design and manufacture sophisticated medical equipment needed for hospitals, and also perform supervisory functions. He deplored that much of the costly equipment in Indian hospitals was not in working order because of lack of trained skilled technicians and poor maintenance.

Orissa establishes Sanskrit university

The Orissa Government has established a university for the study of Sanskrit language and literature. Mr. J.B. Patnaik, Chief Minister of the State, while inaugurating the university at Balukhand at the outskirt of Bhubaneswar said that the university would have teaching-cum-affiliating status. The establishment of the Sri Jagannath Sanskrit Vishwa Vidyalaya at Puri has been justified by the Government on the plea that since ancient times Puri has been one of the foremost centres of Sanskrit learning. It has an added advantage of having the Union Ministry's Sanskrit College also at the place. Dr. Prahlad Pradhan, a noted scholar of Sanskrit, Pali and Chinese has been appointed Vice-Chancellor. At present there are five colleges and 147 schools exclusively for teaching Sanskrit in Orissa.

UP ordinance on transfer of teachers

The UP Governor has issued an ordinance providing for the appointment of principals of higher secondary schools by an education service commission and of teachers by regional boards. The state government had already banned the appointment and promotion of teachers and principals in the high schools and intermediate colleges pending the establishment of the education service commission.

There had been complaints of large sums of money changing hands in the appointment of teachers and principals by the local committees and the managing committees of the secondary schools. Now under the ordinance at least six regional boards would be set up and vacancies would be notified to them by the schools and colleges. The boards would invite applications and make selection of teachers for the appointment in the secondary schools. The boards would also deal with service matters and they would be consulted by the managing committees before taking any action like suspension, removal or dismissal of teachers.

Indo-German cooperation in education strengthened

India and the Federal Republic of Germany are planning to intensify cooperation in the fields of higher education, science and technology. Dr. Madhuri R. Shah, Chairman of the University Grants Commission visited West Germany with a delegation of Vice-Chancellors on a two-week information-visit. This has given a deeper insight to the members of the delegation into the whole philosophy of higher education and the concept of educational freedom. Referring to close contacts between Indian and German universities, she said that under the Indo-German bilateral agreement the Indian Institute of Technology (IIT) is to benefit further from German technical assistance. She was also impressed by the amount of research conducted on "modern India" in West German universities.

The delegation was invited by the German Academic Exchange Service and had discussions with local and Government departments responsible for educational policies in the FRG. The other members of the delegation were: Dr. V. S. P. Manickam, Vice-Chancellor, Madurai Kamaraj University, Madurai, Dr. A. K. Dhan, Vice-Chancellor, Ranchi

University, Dr. R.G. Takwale, Vice-Chancellor, Poona University, and Dr. Jagdish Narain, Vice-Chancellor, Roorkee University.

NIEPA organises orientation programme for college principals

An orientation programme in educational planning and administration for college principals of Haryana State was organised by the National Institute of Educational Planning and Administration in New Delhi recently. Twenty four principals of selected colleges of Haryana State participated in the programme. The programme was inaugurated by Prof S. Nurul Hasan, Vice President, Council of Scientific and Industrial Research, New Delhi. Prof. Nurul Hasan in his opening remarks said that in the process of learning and teaching the learning through mutual experiences is an important way and NIEPA plays a significant role in this process by inviting principals of colleges from various parts of the States and country to come together and share their experiences. He said that the Institute also learns from the experiences of the participants and becomes a national repository of experiences of many people who are responsible for planning and administration of institutions. He observed that the change in education policy with the change of government does not bear a meaning. Besides this, frequent change of policy creates a kind of confiusion in education system. The educational policy has to be one and it has to continue for a good number of years with minor revision here and there due to changes taking place in social system. It should not be changed every now and then.

Prof. Hasan pointed out that education plays a significant role in enforcing the fundamental duties of citizens as specified in the Constitution under Article IV-A through education, because these duties are not enforceable by law. He also made a distinction between higher education and school education. He said higher education should be broadbased. Although higher education is a costly proposition, yet if a thing has to be done it should be done properly. He said any country like ours should have almost 6% of the resources invested on higher education. Every college needs a good library, laboratory and minimum of infrastructural and other facilities. He also observed that of late enrolment in science subject is declining. It is important to see that the enrolment is increased, because in growing countries with more of scientific and technological development there would be greater need of science graduates at various levels.

Prof. Moonis Raza, Director of the Institute, observed that it is important at this stage to raise the right type of questions and seek solutions for them. We may not get answers to all questions but to begin with it would be sufficient to raise the right type of questions.

During the programme of 2-weeks following themes were discussed : (i) Higher Education in Socio-Economic Framework, (ii) Techniques of Planning and Institutional Management, (iii) Standards in Higher Education, (iv) Students Services, (v) College and Community (vi) Financial Management, (vii) Institutional Badies—Students and Teacher's Unions, (viii) Techniques of evaluation—Examination reforms—Teachers and Students Evaluation, (ix) Exercises in decision making in College Planning and Administration.

Eminent educationists and experts, like Dr. Sarup Singh, M.P.. Prof. S.C. Dube, former V.C., Jammu University, Dr. Amrik Singh, Secretary, AIU, Dr. A.K. Jalalludin, Head, Department of Science & Mathematics, NCERT, Shri R.K. Chhabra, Secretary, UGC, Shri S.N. Pandita, Prof. L.R. Shah, Programme Adviser (NSS), Prof. Moonis Rana, Director, Shri J. Veeraraghavan, Executive Director NIEPA, interacted with the participants. Valedictory address was given by Ch. Des Raj, Minister of Education, Haryana Government. The programme was directed by Dr. G.D. Sharma, Fellow, NIEPA.

Subscription Rates

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5 years	72.00	350.00	550.00
Single copy	00.80 ps.	4.00	8.00

The Journal is mailed on 1st & 15th of every month.

Deo Tibba scaled

Six students of the Indian Institute of Technology (IIT) Bombay, successfully scaled the Himalayan peak Deo Tibba (6,036 metres) in the Manali region. The team had earlier scaled Norbu (5,224 metres), a smaller peak nearby. The members of the team were—Gopal Srikrishna Karkare, Ailwyn Carvalho, Aspi Siganporia, Ashish Desphande and Rahul Vora.

Mysore college to coach for IAS and other exams

The Karnataka Government has decided to open a college in Mysore to train scheduled caste and scheduled tribe students for the central services like IAS, IPS and other competitive examinations held by Union Public Service Commission from time to time. The setting up of this college would help the students of weakers sections of society in getting suitable jobs.

2500 special scholarships for studies in Hindi

The Union Education Ministry has granted 2,500 scholarships for students from non-Hindi speaking States for post-matric studies in Hindi during 1981-82. The Statewise break-up of scholarships is as follows: Andhra Pradesh (480); Assam (89); Gujarat (135); Jammu and Kashmir (23); Karnataka (325); Kerala (239); Maharashtra (225); Manipur (10); Meghalaya (10) Nagaland (5); Orissa (225) Punjab (68); Sikkim (5); Tamil Nadu (455); Tripura (15); West Bengal (239); Andaman and Nicobar (5); Arunachal Pradesh (5); Chandigarh (5); Dadra and Nagar Haveli (5); Goa, Daman and Diu (5); Lakshadweep (3); Mizoram (5) and Pondicherry (6).

S.D. Mishra of BITS honoured

The Uttar Pradesh Sanskrit Academy has awarded a cash prize of Rs. 3000/- to Dr. S.D. Mishra, Assistant Professor of Sanskrit, Languages Group for his second book entitled *Abhasa Theory in Advaita Vedanta* (Hindi) as the best publication in Sanskrit by a U.P. scholar in the year 1979. The book is already prescribed in the Universities of Allahabad, Lucknow, Gorakhpur & Rajasthan for M.A. Sanskrit courses.

Visitors from Bangladesh at ISM

A group of fiften students of geology from the University of Dacca, accompanied by five teachers, recently visited Indian School of Mines for a week. The team which was led by Prof. Monirul Haque, were in India on a four week tour to places of geological interest. After the week's visit, a get-together was arranged for the visitors with Prof. G.S. Marwaha, Director, ISM.

ICMR regional research centres for NE region

Shri B. Shankaranand, Union Minister for Health and Family Welfare said in Shillong that the Indian Council of Medical Research would soon establish a Regional Research Centre in the north eastern region to carry on research on certain common health problems of the people in the region. Addressing a meeting of the Health Ministers of the five States and two Union Territories of the region, Sri Shankaranand said that the Centre would concentrate research on some common health problems of the people of the region such as the resistance of the falci parum parasite to chloroquine drug, the cancer of the aesophagus and the problem of stones in the urinary tract. He said the ICMR would also upgrade its existing research centre on human reproduction at the Gauhati Medical College into a Regional Research Centre to serve the training and research needs of the local scientists of the region. He also referred to the steps taken so far by the Government to achieve the goal of health for all by 2000 A.D.

Sri G. Rajbanshi, Assam Health Minister, Dr. Setu Sieglse, Nagaland Health Minister, Sri V. Bhawmik. Tripura Health Minister, Sri P.B. Rosang, Mizoram Health Minister, Sri D.D. Lapang, Meghalaya Health Minister and other officers representing other parts of the region and Dr. V. Ramalingam Swami. Director-General of the Indian Council of Medical Research also attended the meeting.

Medical Council to have wider powers

The Medical Council of India will have more powers and would exercise greater control of medical education and the conduct of doctors in the country.

After some amendments in the Medical Council Act which are under the consideration of the Govt. of India, amended legislation would enable the Council to function more effectively. Although the MCI at presently constituted is a statutory body, it has not been able to control medical education in the country, education being a State subject.

The Union Health Ministry has been exercised over the fact that the standard of education in the country's medical colleges is not uniform. In some cases it is sub-standard also. Therefore the question of re-structuring the medical education is also under the active consideration of the Government.

Certain amendments to the Medical Council Act to control the education of doctors in the country were drawn up by the Union Health Ministry about four years ago. But they were not pursued. Now the Government proposes to take the necessary action in the matter.

NIS courses at Patiala become popular

Many foreign players, national and international, have joined the the regular and condensed courses at the Netaji Subhas National Institute of Sports at Patiala.

Prominent among the 22 foreign players who have been admited are from Nigeria, Nepal, Bangladesh, Mauritius and Fizi. In all, 241 players, including 28 girls have, been admitted to the courses. Hockey emerged as the most popular course, with 30 players, including eight girls enrolled. Besides, 29 athletes, 25 footballers, 21 volleyball players, 18 cricketers, 17 wrestlers, 15 gymnasts and 10 judo and table tennis players have been admitted for international training.

Delhi to provide additional seats

Delhi University is likely to increase 10 per cent seats in various undergraduate courses of the university and its colleges. In view of the large number of successful candidates in the Senior School Certificate Examination, the admission committee of the university has recommended this increase. The actual requirement is being worked out and the final decision is expected to be taken by the university authorities shortly.

Delhi to relax admission requirements

Delhi University has relaxed the requirements of admission to the School of Correspondence Courses from this academic session. It has been felt for quite some time that the minimum requirement for admission should be pass marks in the qualifying examination. At present the school has the same requirements for admission to BA or BCom courses (40 per cent) and MA or MCom courses (50 per cent) as for admission to regular colleges.

The Academic Council of the university which met recently accepted the proposal to bring about the relaxation as it would benefit a large number of students of Delhi who otherwise seek admission to other neighbouring universities.

Delhi to affiliate college in Bhutan

The Academic Council of Delhi University has decided to affiliate a junior college in Bhutan. This is in accordance with the new presidential ordinance enabling the university to affiliate any college in India and abroad if the Government so recommends.

Language academies for Delhi

Delhi will have three academies for the development of Hindi, Urdu and Punjabi, the main languages spoken in the Union territory. The academies, which are being guaranteed generous Central assistance in finance and expertise will have a charter to encourage litterotews and authors in original works, apart from research. The detailed schemes for the academies are yet to be worked out, by the Union Government but the broad outlines have been formulated in this respect.

News from Agril. Varsities

PAU organises national seminar on biogas technology

A three-day National Seminar on Biogas Technology was organised by the Department of Civil Engineering, College of Agricultural Engineering, Punjab Agricultural University at Ludhiana. The concluding session was chaired by Dr. B.S. Pathak, Discussions on wide ranging aspects of biogas technology, such as types of different designs, namely Khadi Village Industries Commission, Chinese and Janta, various materials of construction, methods of slurry disposal, means and ways of maintaining proper slurry temperature, moisture trip, common faults and remedies, etc., were held by engineers, scientists and field workers from different parts of the country.

The important recommendation of the seminar was that satisfactory designs of the biogas plant of different capacities were now available in the country. However, the cost of the existing designs was rather high due to variety of factors chiefly substantial increase in the price of cement, bricks and steel during the last 2-3 years. Hence while on one hand, the need for further simplification of the design and reducing the cost were emphasised, on the other hand, it was strongly recommended that the Government should make provision for soft loans, higher subsidies and priority allocation of cement and steel to all those persons in the rural areas who come forward to adopt and instal the biogas plants. For this, it was emphasised that the State Government should allocate adequate funds to instal the targetted number of biogas plants. It was recommended that training programme for the masons and the rural youth in proper construction methods for the biogas plant, should be organised in each State on priority basis. Extension bulletins, pamphlets and newsletters should be published in regional languages regularly to disseminate information about various aspects of biogas plant including proper operation and its maintenance.

Dr. Dwarakinath advocates simple farm aids

Dr. R. Dwarakinath. Vice-Chancellor of the University of Agricultural Sciences, while inaugurating the Regional Workshop on Traditional Light Engineering Industry for Agriculture, said in Bangalore that it was time to inject simple and standardised equipment into agriculture. He said that in most Indian villages the traditional supporting crafts of carpenters and blacksmiths had vanished. The farmer, therefore, he said, was forced to go in for implements which were either substandard or costly.

The three-day workshop was attended by national co-ordinators from India, Bangladesh, Papua New Guinea and Sri Lanka. The main purpose of the workshop was to assess the current situation of traditional industries with a view to formulating realistic and workable regional projects.

Among the other issues discussed were: design, training and testing facilities for light engineering products, standardisation and quality control of agricultural tools and implements, and formulation of training programmes for participants in relevant technology areas.

The workshop was jointly organised by the Commonwealth Science Council, London, United Kingdom Department of Science and Technology, the Office of the Development Commissioner (Small-Scale Industries), the Government of India, and the ESCAP Regional Centre for Technology Transfer, Bangalore.

Criteria for selecting Professors Emeritus revised

The Academic Council of the Punjab Agricultural University at its last meeting laid down the criteria for the appointment of Professors Emeritus. Only outstanding scientists of exceptional merit would be offered these appointments. Such scientists could be either from within the University or from outside but their calibre should be such that their presence will do honour to the University. They will be provided office and laboratory space and other facilities in the university. The help of a stenographer, a laboratory technician or a fieldman will also be provided by the Department. The University Statutes provide an honorarium of Rs 1000/- per month to these scientists. Efforts will be made to get it enhanced. They may be provided residential accommodation if desirous of residing at the Campus. Teachers re-employed after retirement from University service will have some other designation and there will be a different procedure for their appointment. Such cases will be examined by a Committee consisting of Dean, of the College concerned, Dean post-graduate Studies, Director of Research and the Head of the Department concerned and their recommendations would be placed before the Resident Instruction Committee and later before the Academic Council for consideration.

News from UGC

UGC to insist on teacher-pupil ratio in Delhi colleges

Hereafter the maintenance grant disbursed by the University Grants Commission to the colleges of Delhi University will be decided strictly on the basis of the teacher-pupil ratio prescribed by the University Grants Commission. In a letter to the Delhi University Vice-Chancellor, Professor Gurbakhsh Singh, the UGC has desired that with effect from the 1981-82 academic year, the maintenance grant to colleges be given on the basis of the teacher-pupil ratio. The decision is expected to force colleges, which have hitherto refused to abide by the university directive, to increase their intake to the 1977-78 level when more than 28,000 students were admitted to the first year undergraduate courses. Many colleges which have closed admissions already are expected to open admissions again to meet the prescribed teacher-pupil ratio. The ratio prescribed by the UGC is 1 teacher to 12 students for honours courses and 1:20 for pass courses. While deciding about the teacher-pupil ratio, the UGC will be taking into consideration the ratio of the total number of teachers to the total number of students in a college. The ratio will not be taken subject-wise. From 1978 till last year the University Grants Commission disbursed grants to Delhi colleges on the basis of the teacher-student ratio worked out in 1977-78 when intake was very high. Had the UGC applied the teacher-pupil ratio for the period between 1978 and 1980 when the intake in the colleges was low, Rs 8 to 10 crores could have been saved. However, the UGC did not resort to applying the criterion laid down by it for maintenance grants because of the fear that it would have led to the retrenchment of teachers. The university authorities have welcomed the decision of the UGC to apply the new formula.

Code of ethics for teachers

The University Grants Commission has decided to constitute two study groups, one to look into the queston of increasing the working days of universities and the other to suggest a code of ethics for university teachers. These groups will have representatives of teachers, Vice Chancellors and others concerned with university education. At present the university working days are 180 but owing to students' agitations on some issue or the other most of the universities are not even able to function during this period. Among other things, the recent Vice-Chancellors' meeting in New Delhi had suggested the constitution of a code of ethics for university for raising the standard of education. The UGC has convened a meeting of Vice-Chancellors of the central universities to evolve methods to see how the central universities can function on an all-India basis in regard to admission and other matters.

The universities which will discuss this question are: Aligarh Muslim University, Banaras Hindu University, Delhi University, Visva Bharati, Jawaharlal Nehru University, North Eastern Hill University and the Hyderabad University.

UGC suggests top priority for maintaining hostels

The University Grants Commission has recommended that universities and colleges should give top priority to the matntenance of hostels. The institutions should provide a fixed amount in their budget for this purpose. This is one of the several recommendations accepted by the UGC for improving the living conditions of students in hostels. The recommendations are based on a survey conducted by the Tata Institute of Social Sciences, Bombay, which were later processed by a committee of experts set up by the UGC. It has also recommended that universities and colleges should not admit to hostels students who are pursuing a course in the University and, at the same time, doing a job. The time-limit, suggested for a student's stay in a hostel is four years for those studying for the first degree and six years for post-graduate studies. For M.Phil, courses, a maximum stay of 18 months has been recommended. The Commission has agreed that in future, construction of dormitories should be encouraged in hostels to reduce costs.

The Commission has agreed that compulsory medical check up be conducted for new entrants to hostels, cooks and servants besides periodic medical check up. It has also been suggested that there should be one warden for every fifty students. He should be a teacher in the institution concerned.

Population education course in colleges recommended

Population education is to form one of the foundation courses in universities and colleges under the new pattern of education. Universities and colleges are to be encouraged to introduce these courses, as well as to set up population education clubs. The University Grants Commission has taken certain decisions on the basis of recommendations made by a working group to consider the question of introducing health and population education as a subject of study in higher education. The Commission has suggested that universities and colleges should organize short-term courses and extension work on population education as part of the continuing education programme. These programmes could be organized both for students as well as for the community. It also wanted that population education should be integrated with teacher education programmes.

The Commission offered to assist the existing population education centres in the universities for the Sixth Plan period on the condition that the State Governments assume the responsibility at the end of this period.

UGC for longer academic year

The University Grants Commission has decided to constitute two study groups, one to look into the question of increasing the working days of universities and the other to suggest a code of ethics for university teachers.

The study groups will include representatives of teachers, vice-chancellors and others concerned with university education.

According to UGC sources, at present the university working days are 180 but owing to student agitations on some issue or the other most of the universities are not able to function for part of the academic year.

The UGC has finalised guidelines for inviting sixth plan proposals from colleges. Earlier it had invited such proposals from the 124 universities in the country.

Concurrently, the UGC is going implementing a sub-plan for scheduled castes and scheduled tribes.

The UGC is also going to monitor how appointment of lecturers, non-teaching staff and admission of students are done and whether adequate reservations are made for scheduled castes and scheduled tribes, in the Central universities which receive cent per cent grants from the UGC.

The UGC, has also decided to stream line its working. Instead of sending visiting teams to various universities to find out their requirements regarding books and staff, the UGC Chairman has now decided to invite Vice-Chancellors of different universities in the States to Delhi to find out their immediate requirements.

Science & Technology

Study of environmental and ecological impacts planned

The Department of Environment has undertaken a major project for the study of long-term environmental and ecological impacts of multi-purpose river valley schemes in the Western Ghats of Kerala. This is a very comprehensive project and is estimated to cost Rs. 75 lakhs. It would cover three river valley projects Idukki, Sabarigiri and to some extent the Silent Valley. It is to be completed in five years. The major component of the study is the Rs. 140 crore Idukki Hydroelectric Project which has the unique features of largest water storage capacity of two billion cubic metres in the country, biggest surge shaft tunnel through rocky hills and diversion of flow from one river basin to another.

The Forest Department of Kerala has reported a loss of products, mainly timber, worth about Re. 1 crore annually in the Idukki reservoir area. Some well adapted fauna have been shifted to neighbouring forests. The reservoir, however, offers a good breeding ground for birds, reptiles crustances, and mammals, the shrubs and grass in the reservoir area will promote migration of birds from neighbouring forests on the western ghats.

Lonare proposed for new technology varsity

Lonare, near Mangaon in Raigad district, has been recommended to the Maharashtra government by a committee of experts for location of the proposed technological university in the Konkan area. The committee, headed by Mr. H.G. Vartak, submitted its report to the Chief Minister, Mr. A.R. Antulay. The committee was set up in January this year for submitting its recommendations for a new university in the Konkan areas.

Mr. Vartak said the committee had recommended to the government the setting up of a technological university having jurisdiction over the entire state, taking into consideration the need for studies in technological disciplines in view of the developments in the state. Mr. Vartak hoped that the government would take an early decision on the report and the new university would come into existence in a year or so. The cost of setting up the university initially would be about Rs. 25 crores.

The committee has recommended a number of useful courses and the establishment of seven institutes, each of technology, health sciences, management studies, marine sciences, earth sciences, forestry and applied social sciences. It has also recommended a medical polytechnic for offering para-medical courses, besides a medical college as part of the All-India Institute of Medical Sciences. According to the committee's recommendation, ten per cent of the seats should be reserved for students outside the state, 45 per cent for those from the Konkan and 45 per cent for those from other parts of the state.

The committee has suggested that there should be diploma and certificate courses in various disciplines with Marathi as the medium of instruction for the benefit of the local population, but English should be the medium of instruction at the degree level. The proposed medical complex, including a medical college, would come up near the site recommended by the committee. Lonare is on the highway and in the centre of the Konkan area.

Mr. Vartak said the committee had made many recommendations to enable the common man to get the benefits. They would also help the economic development of the state. The proposed university would be the first of its kind with such a wide coverage. The committee has emphasised the need for co-operation between the industry and the university and for practical training. Under a co-operative education plan recommended, students would be paired and they would alternate between practical training and class room instructions.

Electronics Commission sponsors more projects at ISM

The Electronics Commission of Government of India, has sanctioned a grant-in-aid of Rs. 2 lakhs for further development of a multifrequency electromagnetic equipment by a team led by Prof. B.B. Bhattacharya of the Deptt of Applied Geophysics, Indian School of Mines. Under this project, the technology on multi-frequency prospecting unit already developed at ISM with an earlier grant-in-aid from Electronics Commission will be transferred to West Bengal Electronic Industrial Development Corporation (WBEIDC) for production of a prototype. Simultaneously work will be continued at ISM to develop a transient electromagnetic unit, to enable WBEIDC to take up prototype production of the integrated unit, which is designed for locating 'Conducting' metalliferous ore bodies.

Arya Bhatta vigyan mela held at Gurukul Kangri

An informative exhibition of Science covering a wide range of current topics such as Energy Protein, Pollution, Space Science etc. was organised by the Gurukula Kangri University on the occasion of University convocation. Models depicting principles of Physics, Chemistry, Zoology, Mathematics Botany were very popular. The exhibition was inaugurated by Dr. Jagdish Narain, Vice-Chancellor of Roorkee University.

A Science Magazine in Hindi under the name 'Arya Bhatta Vigyan Patrika' covering a wide spectrum of topics ranging from Science in Vedas to the Science of our modern times was released on this occasion by Shri Virendra, a noted journalist and Chancellor of the University.

ISM starts researches on sophisticated survey techniques

The Deptt of Science and Technology of the Govt of India has sanctioned a project on "Depth of investigation studies in geoelectric methods" to the Deptt of Applied Geophysics of the Indian School of Mines with Prof B.B. Bhattacharya as project leader. The grant-in-aid for the project is about Rs. 2 lakhs spread over a three-year period. The project, on completion, will lead to better interpretation and utility of geoelectric methods.

Personal

1. **Dr. Harbans Lal Sharma has taken over as Vice-Chancellor of Bundelkhand University.**
2. **Dr. L.N. Mandal has taken over as Vice-Chancellor of Bidhan Chandra Krishi Vishwavidyalaya.**
3. **Prof. K.S. Shastri has taken over as Vice-Chancellor of Gujarat University.**
4. **Dr. S.P. Sinha has taken over as Vice-Chancellor of Patna University.**
5. **Dr. Baidyanath Mishra has been appointed Vice-Chancellor of the Orissa University of Agriculture and Technology.**
6. **Dr. K. Kanungo has been appointed Adviser (Agriculture & allied subjects) to the Planning Commission.**

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Charate, Mohini. A study of neuroticism, extraversion, achievement motivation and perception of self of Army executives and their wives. Panjab University.

2. Gupta, Ashum. A feature analysis of responses of subceptually presented visual and auditory stimuli. University of Delhi.

3. Mohan, Rekha. A study on the perception of size and time. University of Delhi.

4. Om Prakash. A study of some psycho-social variables among Hindu and scheduled caste children in a rural set up. University of Delhi

5. Vasundara Devi, K. Changes in self-conceptions and attitudes during adolescence in women: A cross sectional study. Sri Venkateswa a University.

6. Waheeda Khatoon. Effect of urban environment on social, emotional and curiosity behaviour in rhesus Monkeys at different age levels. Meerut University.

Sociology

1. Kalathil, Mathew. Sociological implications of industrialisation in a locality in Gujarat. University of Delhi.

2. Nunthara, C. Politics of the Mizo Hills. University of Delhi.

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1. Mani, Mahajan P. Impact of urbanism on rural youth in Madhya Pradesh: A study of pattern of urbanism in the context of rural—urban continuum. University of Indore.

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1. Chopra, Saroj Bala. Organisation and working of Kota Municipal Council. University of Rajasthan.

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3. Goyla, Bhagwat Sharan. Tanzania in international politics. Meerut University.

4. Guharay, Jaytilak. Jail administration in West Bengal. University of Calcutta.

Economics

1. Agarwal, Shri Ram. Industrialisation in a backward region: A case study of Bundelkhand Region. Kanpur University.

2. Babusaheb, Y. Deficiencies in the development of infrastructure facilities in Eastern States of India since independence. University of Jabalpur.

3. Bhagwati Prasad. Agricultural credit, savings and capital assets. University of Delhi.

4. Bhattacharyya, Dipak Kumar. Growth of Tripura's economy during the period 1951-74. University of Calcutta.

5. Pandit, Som Nath. Critical study of agricultural productivity in Uttar Pradesh 1951-71. Meerut University.

6. Sidhu, Shivender Singh. Steel industry in India: A study of growth structure and problems. Kanpur University.

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1. Karkara, G. A study of the contributory negligence in India. University of Rajasthan.

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1. Saxena, P.K. Employees Associations in the Government of Rajasthan. University of Rajasthan.

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1. Chandra Rao, Amitabh. Indian cavalry: A study of development of cavalry arm in India till Mughal period, 1627. University of Gorakhpur.

2. Singh, Prem Pal. Military aid to Pakistan by various powers and their effects on international relations in the subcontinent, 1947-1975. Meerut University.

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1. Dubey, Brij Bhushan. Relationship of pupil characteristics and classroom behaviour of teacher. University of Gorakhpur.

2. Ekambaram, B. A study of an experiment in creating an effective school climate. South Gujarat University.

3. Hakimji, Faiyaz J. A study of the process of adoption of innovation in innovative secondary schools. South Gujarat University.

4. Katiyar, Prabha Devi. A study of cognitive functions in relation to achievement in mathematics at high school stage. University of Gorakhpur.

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6. Sankarankutty Nayar, G. Preparation of a training programme for non-formal education workers in Kerala. University of Kerala.

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2. Misra, Sarvendra Gopal. Financial analysis of co-operative banks in U.P. Kanpur University.

3. Wadikar, Suryakant Arjunrao. Private Sector Banking in India since 1969: A study into its operations. Panjab University.

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2. Jain, Rames Chandra. Boddha darshan kee shastriya samiksha Sanskrit granthon ke adhar per. *D.Litt.* Rohilkhand University.

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1. Mukherjee, Aditi. Language maintenance and language shift among Punjabis and Bengalis in Delhi: A socio-linguistic perspective. University of Delhi.

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2. Tejpal Singh. Quest for reality in the plays of Eugene O'Neill. Meerut University.

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2. Dikshit, Ram Sundar. Sriram Harsharan Das ke kavya ka vivechnatmak anusheelan. Awadhesh Pratap Singh University.

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Advertisement No. Apptt/3/81

Applications are invited for filling up the following posts in the scales mentioned below plus other allowances as admissible under the rules of the Viswa Vidyalaya:

A. **Professor of Dairy Chemistry/ Professor of Dairy Engineering**—(One temporary post each in the faculty of Veterinary and Animal Sciences) in the scale of Rs 1500-60-1800-100-2000-125/2-2500/-

Qualification : Essential

(i) A first or high second class Master's Degree in the relevant subject; (ii) Ten year's experience in teaching and/or research as evidenced from published papers in institution or University standard at the Post-graduate level of which five years must be in a post equivalent to Reader; (iii) Specialised knowledge in one or more specialised fields with experience of guiding research; (iv) Preference shall be given to candidates having doctorate degree with professional/scientific work of outstanding merit.

N.B.: A Basic professional degree in Agriculture/Mechanical/Electrical Engineering at the graduate level is essential for the post of Professor of Dairy Engineering.

B. **Agricultural Chief Scientist (Water Management)**—One post in the scale of Rs. 1500-60-1800-100-2000-125/2-2500/- under Coordinated Project for Research on Water-Management at Jhargram.

Qualification : Essential

(i) A first or high second class Master's Degree in Agronomy/Soil Science/ Agricultural Engineering/Soil and Water Conservation or equivalent degree of a foreign University with specialisation in Soil and Water Management for crop production; (ii) A Doctorate degree in the relevant subject or equivalent published work with distinguished record of research of high standard; (iii) 10 years' teaching and/or research experience of which 5 years must be in the post of a Reader or in an equivalent position; (iv) Experience of successfully guiding research at the Doctoral Level;

OR

(i) An eminent Scholar with published work of high quality and actively engaged in research; (ii) 10 years' experience of teaching and/or research in the subject mentioned above; (iii) Experience of successfully guiding research at the doctoral level.

Note: In case of persons having Master's Degree in Agril. Engineering, the doctoral degree is not essential but the candidate having the doctorate degree or equivalent published work will be preferred.

C. (i) **Reader in Agricultural Chemistry and Soil Science (ii) Reader in Genetics and Plant Breeding (iii) Reader in Agricultural Statistics** —One post each for the N.B. Campus in the scale of Rs. 1200-50-1300-60-1900/-

Qualification : Essential

(a) A first or high second class Master's Degree in Agril. Chemistry and Soil Science for (i), Genetics and Plant Breeding/Botany for (ii) and Agril. Statistics for (iii) or equivalent degree of a foreign University (b) A Doctorate Degree in the relevant subject or equivalent published work with a good record of research (c) Five years' experience of teaching and/or research of which three years must be as Lecturer or in a post of equivalent rank.

Note: Specialisation in any branch of the subject at (ii)

D. **Agronomist (Water Management)** —One post in the scale of Rs. 1200-50-1300-60-1900/- under the Project at 'B'

Qualification : Essential

(i) A first or high second class Master's Degree in Agronomy with specialisation in Soil and Water Management for crop production or an equivalent qualification of a foreign University; (ii) A Doctorate Degree in Agronomy or equivalent published work with a good record of research; (iii) Five years' experience of research and/or teaching in Soil and Water Management for crop production out of which 3 years must be in the rank of Lecturer.

E. **Soil Physicist**—(One post) in the scale of Rs. 1200-50-1300-60-1900/ under the Project at 'B'

Qualification : Essential

(i) A first or high second class Master's Degree in Agricultural Chemistry and Soil Science/Agricultural Physics or an equivalent degree of a foreign University with specialisation in Soil Physics; (ii) A Doctorate Degree in the subject at (i) or equivalent published work with a good record of research on Soil Physics; (iii) Five years' experience of research and/or teaching in Soil Physics of which three years must be in the rank of Lecturer.

F. **Agricultural Engineer**—(One post) in the scale of Rs. 1200-50-1300-60-1900/- under the Project at 'B'

Qualification : Essential

(i) A first or high second class Master's Degree in Agricultural Engineering or equivalent Degree of a foreign University with specialisation in Soil and Water Conservation Engineering; (ii) Five years' experience of research and/ or teaching of which three years must be in the rank of Lecturer.

Note: The candidate having Doctorate Degree or equivalent published work with distinguished record of research will be perferred.

G. **(a) Lecturer in Plant Pathology (N.B. Campus), (b) Lecturer in Agricultural Extension (N.B. Campus) and (c) Lecturer in Agricultural Statistics (temporary for Kalyani Campus)**—One post each in the scale of Rs. 700-40-1100-50-1600/-

Qualification : Essential

(i) A consistently good academic record with first or high second class Master's degree in the relevant subject or equivalent degree of a foreign University (ii) A Doctorate Degree in the subject concerned or published research work of an equally high standard.

Age : Below 45 years.

H. **Lecturer in Agricultural Chemistry and Soil Science** —(One post for Kalyani Campus) in the scale of Rs. 700-40-1100-50-1600/-

Qualification : Essential

(i) A consistently good academic record with first or high second class Master's degree in Agricultural Chemistry and Soil Science with specialisation in Soil Science or equivalent degree of a foreign University, (ii) Doctoral Degree in Soil Science and Agricultural Chemistry, preferably in the field of Soil Physics or Physical Chemistry of Soils or published research work of an equally high standard.

Desirable : Teaching or research experience in basic Physical Chemistry/ Physical Chemistry or Soils/Soil Physics.

Age : Below 45 years.

I. **Lecturer in the Department of Genetics and Plant Breeding**—(One post against a lien vacancy) in the scale of Rs. 700-40-1100-50-1600/-.

Qualification : Essential

(i) A consistently good academic record with first or high second class Master's degree in plant Physiology or Botany/Agricultural Botany with specialisation in Plant Physiology or equivalent degree of a foreign University (ii) A Doctoral Degree in the subject or published research work of an equally high standard.

Desirable

Teaching experience in Plant Physiology in Hons. or Postgraduate level and Research experience in Crop Physiology.

Age: Below 45 years.

J. **Lecturer in Radiology** —(One post) in the scale of Rs. 700-40-1100-50-1600/-

Qualification : Essential

(i) A consistently good academic record with first or high second class Master's degree in Radiology/Surgery or equivalent degree of a foreign University (ii) Doctorate Degree in the subject or published research work of an equally high standard.

Age : Below 45 years.

Note: Those who have applied in response to previous advertisement in this regard (APPTT/5/80) need not apply again.

K. Lecturer in Dairy Chemistry —(One temporary post) in the scale of Rs. 700-40-1100-50-1600/-

Qualification : Essential

(i) A consistently good academic record with first or high second class Master's degree in Dairy Chemistry or equivalent degree of a foreign University (ii) Two years' teaching/research experience in any institute of repute.

Note: Preference shall be given to candidates having Doctorate Degree or published work of equal standard.

Age: Below 45 years.

L. Junior Scientist—One each for (i) Agronomy (ii) Soil Physics, (iii) Soil Chemistry and (iv) Agricultural Engineering in the scale of Rs. 700-40-1100-50-1600/- under the project as in 'B'

Qualification : Essential

(a) A consistently good academic record with first or high second class Master's Degree in Agronomy for (i) Agricultural Chemistry and Soil Science/Agricultural Physics for (ii) Agricultural Chemistry and Soil Science/Soil Science for (iii) and Agricultural Engineering for (iv) or requivalent degree of a foreign University. (b) A Doctorate degree in the relevant subject or published research work of an equally high standard for (i), (ii) and (iii). For (iv) preference will be given to candidates having degree in (b) (c) Specialisation : Soil and Water Management for (i), Soil Physics for (ii), Soil Fertility for (iii) and Soil and Water Management Engineering/ Soil and Water Conservation for (iv).

Age: Below 45 years.

M. (i) Junior Horticulturist (ii) Junior Entomologist—One post each under AIC Spices and Cashewnut Improvement Project in the scale of Rs. 700-40-1100-50-1600/-

Qualification : Essential

(a) A consistently good academic record with first or high second class Master's degree in Horticulture for (i) and Entomology for (ii). (b) Doctorate Degree in the concerned subject or published research work of an equally high standard. (c) Preference will be given to the candidates having research experience on spices and cashewnuts.

N. Lecturer—(Two posts) under the H.E.F.N. Project in the scale of Rs. 700-40-1100-50-1600/-

Qualification : Essential

(i) A consistently good academic record with first or high second class Master's degree in Agricultural Chem. and Soil Science with specialisation in Bio-chemistry/Food Science/Nutrition or equivalent degree of a foreign University, (ii) A Doctoral Degree in the subject concerned or published research work of an equally high standard.

Desirable

At least two years' experience in research/teaching on nutrition extension work.

Age: Below 45 years.

O. Asst. Geneticist-cum-Plant Breeder —One post in I.C.A.R.'s Ad-hoc Scheme on Intensified Research Work etc. in the scale of Rs. 700-40-1100-50-1600/-

Qualification : Essential

(i) A consistently good academic record with first or high second class Master's degree in Plant Genetics/Plant Breeding and Genetics; or equivalent degree of a foreign University; (ii) A Doctorate degree in the subject or published research work of an equally high standard.

Age: Below 45 years.

P. Subject Matter Specialist (Extension)—(One post under National Demonstration Scheme) in the scale of Rs. 700-40-1100-50-1600/-

Qualification : Essential

(i) A consistently good academic record with first or high second class Master's degree in Agricultural Extension or equivalent degree of a foreign University, (ii) A Doctoral Degree in the subject or published research work of an equally high standard.

Desirable

(i) Two years' experience of teaching/research/extension work in any institute of repute; (ii) Experience of conducting Demonstration/Farm Advisory work; (iii) Experience of conducting Training programme/Communication work.

Age: Below 45 years.

Q. Reader in Agricultural Entomology —(One post for N.B. Campus) in the scale of Rs. 1200-50-1300-60-1900/-

Qualification : Essential

(i) A first or high second class Master's Degree in the subject or equivalent degree of a foreign University; (ii) A Doctorate degree in the subject or equivalent published work with a good record of research; (iii) Five years' experience of teaching and/or research of which three years must be in the rank of Lecturer or equivalent rank.

Age: Below 50 years.

R. Reader in Dairy Engineering (One post temporary) in the scale of Rs. 1200-50-1300-60-1900/-

Qualification : Essential

(i) A first or high second class Master's Degree in the subject; (ii) Five years' experience in teaching and/or research as evidenced from published papers in Institution or University standard of which three years must be in a post in the rank of Lecturer. (iii) Preference shall be given to candidates having Doctorate Degree or published work of equal merit; (iv) A Basic professional degree in Agriculture/Mechanical/Electrical Engineering at the graduate level.

Age: Below 50 years.

N.B.

(i) For all posts under all the categories in the disciplines of Agronomy, Horticulture and Surgery a basic professional degree in Agriculture i.e. B.Sc. (Ag.)/B.V.Sc. and A.H. as the case may be is essential;

(ii) Preference will be given to the candidates having basic degree in Agriculture or B.V.Sc. and A.H. for all categories of posts in other disciplines.

(iii) For the posts of Lecturer or equivalent rank, if a candidate possessing Doctorate Degree or equivalent research work (where mentioned essential) is not available or is not considered suitable, the person possessing consistently good academic record may be considered for appointment, on the condition that he/she will have to attain a doctorate degree or show evidence of research work of equivalent high standard within five years of his/her appointment failing which he/she will not be eligible to earn increments till he/she fulfil these requirements.

(iv) Posts shown a temporary under different categories are likely to be permanent.

Experience and age limit may be relaxable on the recommendations of the Selection Committee in the case of candidates otherwise qualified. A high initial pay in the scale may be granted on the scale on the basis of qualifications, experiences and present emoluments.

Applications must be submitted in the prescribed proforma obtainable from the office of the undersigned, Bidhan Chandra Krishi Viswa Vidyalaya, P.O. Mohanpur, Dist. Nadia, West Bengal by remitting crossed Indian Postal Order for Rs. 8.00 (eight) in favour of the 'Bidhan Chandra Krishi Viswa Vidyalaya' between 11.30 a.m. and 4.00 p.m. on weekdays and between 11.30 a.m. and 1.00 P.M. on Saturdays.

Application forms may also be obtained by post by sending a self addressed envelope Re. 0.50 (fifty paise) only and the **necessary Postal Order**).

Separate applications are to be submitted if applied for more than one discipline.

Persons already in employment should apply through proper channel.

Applications completed in all respects should be submitted to the office of the undersigned by the **31st August, 1981** in an envelope superscribed with the name of the post applied for.

Candidates called for interview will have to appear at their own cost.

REGISTRAR

HIMACHAL PRADESH UNIVERSITY

SIMLA-171 005

Advertisement No. 7/81

Applications are invited for the posts of Lecturers in the following subjects so as to reach the Registrar, H.P. University, Simla-171005 alongwith a crossed Indian Postal Order of Rs. 10/- (Rs. 5/- for S.C./S.T.) payable to the Finance Officer, H.P. University, Simla-171005 by the **17th August, 1981**.

For Post-Graduate Centre

Physics—5, Hindi—3, English—2, German—1 (Plan post likely to continue), French—1, Bio-Sciences—4 (2 Plan posts likely to continue and 2 posts on leave vacancy) (Desirable specialisation in Cytogenetics/Invertebrate Morphology/Cell Biology/Animal Physiology/Parasitology), Chemistry—2 (1 in Physical Chemistry and 1 on leave vacancy in Inorganic Chemistry), Psychology—2 (Desirable specialisation in Psychometrics/Child Psychology/ Clinical Psychology / Personality), Sanskrit—2 (Desirable Specialisation in Veda or Vyakarana or Darshana) and Economics—2, Laws—2 (1—regular and 1 Leave vacancy), Commerce—2 (Temporary but likely to continue) **For H.P. University Evening College** Lecturers in Hindi—2.

Essential Qualifications and Pay Scales
(Except for Lecturers in Laws)

(a) Ph.D. or an equivalent degree or published work of an equally high standard in the subject concerned; and

(b) having consistently good academic record with second class Master's degree with atleast 50% marks in the subject concerned or in an allied subject, or an equivalent degree of a Foreign University.

Provided further that a candidate possessing a consistently good academic record may be called for interview and appointed on the recommendations of the Selection Committee, if a candidate with qualifications at (a) above is not available, or is not considered suitable, on the condition that he will have to attain the required qualifications within five years of his appointment, failing which he shall not earn future increments until he fulfils the conditions.

Provided further that for Postgraduate classes (covered above) other factors being equal amongst non-Ph.D. candidates, an M.Phil. with high performance will be preferred.

Explanation

(a) Consistent good academic record means atleast 50% marks in two different lower examinations separately or atleast 55% marks in average of the two lower Examinations irrespective of percentage of marks obtained in either of such lower examinations.

"Provided that in case of a candidates with 55% or more marks in M.A./LLB., consistent good academic record will mean atleast 50% average marks in three examinations, namely, M.A./LL.B. and any two lower examinations taken together provided he has atleast 50% marks in one lower examination.

Explanation

(b) Lower examinations include:

(i) B.A./B.Sc./B.Com. etc.

(ii) B.A.I/Intermediate/B.Sc. (Part—I)/ B.Com. Part—I etc.

(iii) P.U.C./Higher Secondary Part—II.

(iv) Matric/I.S.C./Higher Secondary Part—I.

For Lecturers in Law

(a) LL.M. Degree with atleast 50% marks of any Indian University recognised by Law or an equivalent degree of a Foreign University with equivalent grade.

(b) having consistent good academic record with atleast 50% marks in LL.B.

Explanation

Consistent good academic record means as explained under Explanation (a) and (b) above.

Pay Scale: Rs. 700-1600.

Candidates already in service should send their applications through proper channel. An advance copy, however, may be sent direct.

Candidates called for interview will have to come to the place of the interview at their own expenses and bring with them their original research papers, degrees and certificates etc. for verification.

The University reserves the right to negotiate with suitable person or persons, if necessary, who may not have applied formally.

The University also reserves the right to fill up or not to fill up the posts or to call only selected candidates for interview. The number of posts likely to be filled may vary.

Application form can be obtained from the Section Officer, Recruitment Branch, Himachal Pradesh University, Simla-5, personally on payment of Rs 2/- or by making a written request to him accompanied by self addressed envelope of 23 x 10 cms and a postal order of Rs 2/- drawn in favour of the Finance Officer, H.P. University, Simla-171005.

Note

(i) Applications not in conformity with the requirements as specified in the application form and applications received after the due date will not be entertained, and no correspondence will be entertained in this regard.

(ii) A person applying for more than one post should send a separate application for each post.

(iii) Persons who have already applied for the above mentioned posts in response to our earlier advertisements Nos. 3/80 and 4/80, dated **26-6-80**, and **9-7-80**, respectively, need not to apply again. However, they may send additional informations, if any.

A.R. Chauhan
REGISTRAR

UTKAL UNIVERSITY

VANI VIHAR
BHUBANESWAR-4
Advertisement No. Estt. I/-886-C/19824/81

Dated: 17.7.81

Wanted

One Lecturer in Psychology
—Substantive

One Lecturer in Labour Welfare
—Leave Vacancy

One Lecturer in Statistics
—Leave Vacancy
in the P.G. Department of Economics.

in the respective Post Graduate Departments of the University in the U.G.C. Scales of Pay possessing the U.G.C. and University prescribed qualifications. Last date for receipt of applications is **17.8.1981.**

Posts

Psychology Lecturer
Labour Welfare Lecturer

Specialization

Area of Industrial Relations.

Lecturer in Statistics in P.G. Department of Economics.

Prescribed application forms in seven copies for Regular posts and other details for the various posts can be had from the Registrar of the University in person on payment of Rs. 7.49 paise or by post on receipt of a crossed Indian Postal Order for Rs. 9/- payable to the Finance Officer, Utkal University, Vani Vihar, Bhubaneswar-751 004.

S.K. Roy
REGISTRAR

SAMBALPUR UNIVERSITY

JYOTI VIHAR : BURLA
SAMBALPUR

Notification No. 11905 Estt. II

Dated the 24.7.81

The last date for receipt of applications in the prescribed form for the posts of Lecturers in Electronics and Telecommunication Engineering add in Mechanical Engg. in University College of Engineering, Burla as notified in Advertisement No. 10628/ Estt II dated 7-7-81 is extended up to 10-8-1981. Applications received after 10-8-1981 will not be taken into consideration.

N. Mohapatra
REGISTRAR

HARYANA AGRICULTURAL UNIVERSITY

Corrigendum to Advertisement No. 3/81

The words "Mites and Rodents" appearing at the end of qualifications for the post of Associate Professor of Zoology (Sr. No. 9) may be read as "Mites or Rodents."

REGISTRAR

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI

Advt. No. Acad. III/7/81

Applications are invited for the following posts:

I. SCHOOL OF COMPUTER & SYSTEMS SCIENCES

(1) Professors/Sr. Fellows—2

Essential Qualifications

(1) Consistently good academic record with at least a high second class Master's degree in a relevant discipline or an equivalent qualification from an Indian/Foreign University.

(2) A Doctor's degree or published work of an equally high standard; and

(3) About ten years' experience of teaching and/or research.

Area of Specialisation

(i) for first post
—Computer Software

(ii) for second post
—Modelling and Simulation.

Note

Some of the current academic activities in the School span areas like pattern recognition, Decision optimisation theory, Information Systems and Computer Software, Theoretical Computer Science. Those who have appropriate qualifications, experienc and are involved in one or more of these areas will fit well into the scheme of activities.

II. SCHOOL OF INTERNATIONAL STUDIES

Centre for Soviet and East European Studies

(2) Professor/Senior Fellow in Soviet Studies

Qualifications

(1) Consistently good academic record with at least a high second class Master's degree in any of the Social Sciences or an equivalent qualification from an Indian/Foreign University.

(2) A doctor's degree or published work of an equally high standard relating to Soviet Studies.

(3) About ten years' experience of teaching and/or research in the field of Soviet Studies.

(4) Knowledge of Russian Language.

Centre for International Politics and Organisation

(3) Research Assistant
(Reserved for Scheduled Caste/Scheduled Tribe candidate).

Essential Qualifications

A first or high second class Master's degree in Political Science/History/International Relations.

Desirable

Some Research experience and knowledge of contemporary International Relations.

III. SCHOOL OF SOCIAL SCIENCES

Centre for the Study of Regional Development

(4) Assistant Professor in Agricultural Geography: (temporary against leave vacancy for about two years).

Essential Qualifications

(a) Consistently good academic record with at least a high 2nd Class Master's degree in a relevant discipline or its equivalent qualification from an Indian/Foreign University; and

(b) A doctor's degree or published work of an equally high standard.

Area of Specialization

Agricultural Geography.

Desirable

Adequate competence in the use of quantitative methods and some research work on problems of Indian agriculture.

Provided that in the case of Assistant Professor if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (a) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Centre of Social Medicine and Community Health

(5) Research Assistant
(tenable for one year in the first instance and reserved for Scheduled Caste/Scheduled Tribe candidate; in the event of no SC/ST candidate being found suitable, the post will be filled up from general category).

Qualifications

(1) A good M.B.B.S. Degree from recognised University; and

(2) Interest in Community Health.

Scale of pay

(1) Professor/Sr. Fellow
Rs. 1500-60-1800-100-2000-125/2-2500.

(2) Assistant Professor
Rs. 700-40-1100-50-1600.

(3) Research Assistant
Rs. 550-20-650-25-750.

Relaxation in any of the qualifications may be made (a) in favour of persons of eminence or of high academic/professional distinction and (b) in exceptional cases where adequately qualified persons are not available but are otherwise found suitable for the respective positions. It will also be open to the University to consider the names of suitable candidates who may not have applied.

The selected candidates will be expected to participate in the teaching and research programmes in the concerned disciplines in other Schools of the University as well as in the programmes offered in their own Centres of Studies.

Benefits of C.P. Fund-cum-Gratuity/G.P. Fund-cum-Pension-cum-Gratuity are available as per University rules.

Persons already in employment should route their applications through proper channel.

Due consideration will be given to candidates belonging to Scheduled Caste/Scheduled Tribe at the level of Assistant Professor.

For Research Assistants

Age limit

40 years; relaxable by 5 years in respect of candidates belonging to Scheduled Castes/Scheduled Tribes/Ex-Servicemen/Physically handicapped candidates.

Upto 1% of the vacancies are reserved each for deaf, blind and orthopaedically handicapped, in Group C & D (Class-III and IV) posts.

Second class (mail) rail fare (both ways) will be paid to candidates invited to appear for interview from outstation by the shortest route.

Applications separate for each post, on the prescribed form, obtainable free of cost from the Section Officer (Acad. Branch-III) of the University by sending him a self-addressed and stamped envelope (affixing postage stamps worth Rs. 02.85) of 23 cm x 10 cm. size, should reach the Deputy Registrar (Academic), Jawaharlal Nehru University, New Mehrauli Road, New Delhi-110067, latest by **26-8-1981**.

Candidates from abroad, applying for the faculty positions, may apply on plain paper, (but their applications should reach the University by the last date) furnishing all the relevant informations such as their name, date and place of birth, marital status, nationality; state of domicile; postal and permanent addresses; father's name and address; academic and professional attainments; full details of (a) publications, and (b) research projects undertaken; language(s) known; details of visits to foreign countries; and the names and addresses of at least two persons well acquainted with the candidate's professional work who should also be requested by the candidate to forward to the Deputy Registrar (Academic) confidential report concerning the candidate.

ANNAMALAI UNIVERSITY

ANNAMALAINAGAR-608002

Applications are invited for filling up of the following posts, in the prescribed form obtainable on payment of Rs. 5/- to the Registrar, Annamalai University, Annamalainagar-608002 by cash/Money Order/Postal Order (not refundable). Completed application forms (with five additional copies) should reach the Registrar on or before **7-8-1981**. The envelope containing the application should be superscribed as "Application for the post of.........."

1. **Professor and Head of the Department of Zoology**—One post
2. **Reader in Marine Biology**—Three posts
3. **Reader in Electrical Engineering** —One post
4. **Lecturer in Population Studies**—Two posts (One from 81-82)
5. **Lecturer in Civil Engineering**—Two posts
6. **Lecturer in Electrical Engineering** —Two posts
7. **Assistant Engineer (Public Health)** —One post.

Scale of pay

1. **Professor** : *Rs. 1500-60-1800-100-2000-125/2-2500 with usual allowances.
2. **Reader** : Rs. 1200-50-1300-60-1900 with usual allowances.
3. **Lecturer** : Rs. 700-40-1100-50-1600 with usual allowances
4. **Assistant Engineer (PH)**—Rs. 600-30-750-35-890-40-1050 with usual allowances.

* A higher starting salary will be given to those who possess outstanding merit or/and rich and specialised experience.

Qualifications

1. **Professor** : Person possessing a Doctorate degree and He/She should be an eminent scholar with published work of high quality, actively engaged in research. Ten year's experience of teaching and/or research experience of guiding research at Doctoral level.

OR

He/She should be an outstanding scholar with established reputation who has made significant contribution to knowledge.

2. **Reader** (Other than Engineering and Technology):

Good Academic record with a Doctoral Degree or equivalent published work. Evidence of being actively engaged in (i) Research (ii) Innovation in teaching methods or (iii) production of teaching materials.

About five years' experience of teaching and/or research provided that at least three years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding research work.

3. **Lecturer** (other than Engineering and Technology):

A Doctor' degree or published work of an equally high standard; and Consistently good academic record with 1st or 2nd class (B +) Master's degree in a relevant subject or an equivalent degree of a foreign University.

ENGINEERING & TECHNOLOGY

1. **Reader**

A good academic record with a Doctor's degree in a relevant field. About 5 years experience of teaching and/or research and development.

Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in the institution or in an industry.

OR

In the case of persons to be recruited from industry or professional fields, candidate should possess good academic record with recognised professional work of about 7 years which should include innovation and/or research and development.

2. **Lecturer**

(a) Master's degree in appropriate field in Engineering/Technology.

(b) Consistently good academic record with a Bachelor's degree in Engineering/Technology. First Class at Bachelor's degree and/or Master's degree level.

(c) One year's relevant professional experience outside academic research institutions.

Having regard to the requirements of emerging fields of Engineering and of developing inter-disciplinary programmes, the requirements of Engineering/Technology degrees may be waived in the cases of otherwise well qualified candidates.

Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable the person appointed will be required to obtain desired professional experience within a period of five years of his appointment failing which he will not be able to earn future increments, until he fulfils this requirement.

Assistant Engineer (Public Health)

B.E. with Diploma in Public Health, Engineering with five years experience in Water Supply.

OR

Licenciate in Sanitary Engineering with ten years experience.
Age: below 40 years.

E. Thangavelu
REGISTRAR IN-CHARGE

MEERUT UNIVERSITY

MEERUT

Applications are invited for the following teaching posts:

(A) One Temporary post of Reader in Physics (Likely to be permanent) against a leave vacancy for a period of about one year in the grade of Rs. 1200-50-1300-60-1900.

(B) One Temporary post of Reader in Mathematics against a leave vacancy for a period of about two years in the grade of Rs 1200-50-1300-60-1900.

Minimum Qualifications for the post of Reader

(1) Good academic record with doctorate degree or equivalent published work and active engagement in research or innovation in teaching methods or production of teaching materials; and

(2) Five years experience of teaching or research including atleast three years as Lecturer or in an equivalent position.

Provided that the requirement contained in clause (2) may be relaxed in the case of a candidate who, in the opinion of the Selection Committee, has outstanding research work at his credit

Desirable for the post of Reader in Physics: Specialization in Solid State physics Material Science/Electronics/Nuclear Physics.

Desirable for the post of Reader in Mathematics : Specialization in Fluid Dynamics.

Note

For the above mentioned posts of Readers in Physics and Mathematics other things being equal, preference will be given to the Scheduled Caste/Tribe candidates who are considered fit. Such candidates should indicate in their application that they belong to scheduled caste/tribe and attach certificate to that effect from the District Magistrate of the District to which they belong. No other certificate for this purpose will be entertained.

Prescribed application forms can be obtained free of cost by sending a self addressed envelope of size 23 x 10 cm and stamped worth **Re. 0.80** from the Assistant Registrar (Academic). Meerut University, Meerut. Last date for submission of applications duly completed in all respects with recent testimonials, publications etc. and Bank Draft for **Rs. 7.50** (in the name of the Finance Officer, Meerut University, Meerut) to the Registrar, Meerut University, Meerut is **17th August**, **1981**. Cheques, M.O. or I.P.Os will not be accepted. The candidates who are in service must send their applications through proper channel.

V.B. Bansal
REGISTRAR

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University News

17 SEP 1981
C.F.T.R.I., MYSORE

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH AUGUST 15, 1981

Smt. Indira Gandhi, Prime Minister of India, planting a sapling at the Environment Complex of Bhopal University

OCIATION OF INDIAN UNIVERSITIES PUBLICATION

JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI

Advertisement No. Aca. III/8/81

Applications are invited for the following posts:

I. SCHOOL OF INTERNATIONAL STUDIES

Centre for Studies in Diplomacy, International Law and Economics

(1) Professor/Senior Fellow in Diplomacy

Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's Degree in any of the Social Sciences or an equivalent qualification from an Indian/foreign University;

(b) A doctor's degree or published work of an equally high standard in the field of Diplomatic Studies; and

(c) About ten years' experience of teaching and/or research in the field of Diplomatic Studies.

Desirable Qualifications

Considerable experience of guiding research in the field.

II. SCHOOL OF SOCIAL SCIENCES

Centre for the Study of Social Systems

(2) Associate Professor/Fellow

Essential Qualifications

(a) Consistently good academic record with at least a high second Class Master's degree in Sociology or its equivalent qualification from an Indian/Foreign University;

(b) A doctor's degree or published work of an equally high standard in Sociology;

(c) About 5 year's experience of teaching and/or research in Sociology.

Area of Specialisation required

One or both of the following:

(i) Sociology of knowledge
(ii) Sociology of religion

Desirable

Some experience in guiding research at the M.Phil./Ph.D. levels.

Scale of Pay

1. Professor/Sr. Fellow
   Rs. 1500-60-1800-100-2000-125/2-2500.
2. Associate Professor/Fellow
   Rs. 1200-50-1300-60-1900.

Relaxation in any of the qualifications may be made (a) in favour of persons of eminence or of high academic/professional distinction and (b) in exceptional cases where adequately qualified persons are not available but are otherwise found suitable for the respective positions. It will also be open to the University to consider the names of suitable candidates who may not have applied.

The selected candidates will be expected to participate in the teaching and research Programmes in the concerned disciplines in other Schools of the University as well as in the programmes offered in their own Centres of Studies.

Normally appointment of Fellows is made on contract basis for a period ranging from one to three years.

Benefits of C.P. Fund-cum-Gratuity/G.P. Fund-cum-Pension-cum-Gratuity are available as per University rules.

Persons already in employment should route their applications through proper channel.

Second class (mail) rail fare (both ways) will be paid to candidates invited to appear for interview from outstation by the shortest route.

Applications separate for each post, on the prescribed form, obtainable free of cost from the Section Officer (Acad. Branch-III) of the University by sending him a self-addressed and stamped envelope (affixing postage stamps worth Rs 02.85) of 23 cm x 10 cm. size, should reach the Deputy Registrar (Academic), Jawaharlal Nehru University, New Mehrauli Road, New Delhi-110067, latest by **8.9.1981**.

Candidates from abroad, applying for the faculty positions, may apply on plain paper, (but their applications should reach the University by the last date) furnishing all the relevant informations such as their name, date and place of birth, marital status, nationality; state of domicile; postal and permanent addresses; father's name and address; academic and professional attainments; full details of (a) publications, and (b) research projects undertaken; language(s) known; details of visits to foreign countries; and the names and addresses of at least two persons well acquainted with the candidate's professional work who should also be requested by the candidate to forward to the Deputy Registrar (Academic) confidential report concerning the candidate.

INDIAN INSTITUTE OF TECHNOLOGY
BOMBAY-76
P.O. I.I.T., POWAI, BOMBAY-400076

Advertisement No. A-31/81

Applications are invited for the following permanent posts at this Institute, in the prescribed form obtainable free of charge from the Registrar, Indian Institute of Technology, P.O. I.I.T., Powai, Bombay-400076 on request accompanied by self-addressed envelope (25 cm x 10 cm). Applicants should give an account of their academic and professional record and list of research publications. Persons employed in Government/Semi-Government Organisation or Educational Institutions should apply through proper channel. Indian candidates abroad may apply on plain paper in duplicate. The posts carry allowances such as D.A., C.C.A., H.R.A. as per rules of the Institute which at present correspond to those admissible to the Central Government Employees stationed at Bombay. Completed applications should reach the Registrar, I.I.T., Powai, Bombay-400076 on or before **31-8-1981**.

Some posts of Lecturer are reserved for the candidates belonging to SC/ST community.

1. **Assistant Professor**
   Scale of pay of Rs. 1200-50-1300-60-1900.
2. **Lecturer**
   Scale of pay of Rs. 700-40-1100-50-1600.

QUALIFICATION AND EXPERIENCE

1. Assistant Professor

Good academic record with a Doctor's degree in the relevant field. About 5 years experience of teaching and/or research and development.

Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in an Institution or in an Industry.

2. Lecturer

Master's degree in appropriate field in engineering/technology. Consistently good academic record with a Bachelor's degree in Engineering/Technology. (First Class at Bachelor's degree and/or Master's degree level).

One year's relevant professional experience outside academic/research institutions.

FIELDS OF SPECIALISATION

(in one or more of the following)

(1) Department of Mechanical Engineering:

For the posts of Assistant Professor and Lecturer:

(i) Production Engineering
(ii) Heat, Power and Refrigeration Engg.
(iii) Instrumentation and Control.

For the post of Lecturer only:

(i) Industrial Engineering and Operations Research

(2) Department of Chemical Engineering:

For the posts of Assistant Professor and Lecturer

(i) Mass Transfer Operations,
(ii) Process, Equipment and Plant Design
(iii) Instrumentation/Process Dynamics/Process Control
(iv) Mathematical Modelling and Simulation

(3) Department of Civil Engineering

For the post of Assistant Professor only

(i) Concrete Technology

(4) Department of Mathematics

For the post of Assistant Professor

(i) Numerical Analysis
(ii) Computer Science
(iii) Statistics and Operations Research.

For the post of Lecturer

Good academic record with Doctorate or Master's degree in Mathematics with specialisation in one or more of the above fields as at 4 (i, ii, iii).

5. Department of Humanities and Social Sciences

For the posts of Assistant Professor and Lecturer

Good academic record with a Doctorate Degree/Master's degree in Psychology with specialisation in one or more of the following:

(i) Statistical Methods
(ii) Experimental Psychology
(iii) Industrial Psychology
(iv) Personnel Management.

UNIVERSITY
NEWS

VOL. XIX AUGUST 15
No. 16 1981

A Fortnightly Chronicle of Higher Education Price 80 Paise

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Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : ANJNI KUMAR

Who should run the universities?

Amrik Singh*

It is a part of my professional work to deal with vice-chancellors. During the decade and a half that I have been doing this job, I must have come across something like 500 of them. A few of them have been outstanding. Their experience and insights have been exceedingly helpful and it was a rewarding experience to have had this opportunity to work with them.

This breed of outstanding people is unfortunately getting extinguished. It has a good deal to do with the changing university scene. In order to manage a university today, what is required is the ability to manage people. This refers to everybody—students, teachers, non-teaching employees; even those who make decisions with regard to the universities, for instance, ministers, members of university bodies, secretaries to the government and others concerned with disbursement of funds. None of them is easy to manage. Unlike most people however, I believe that the easiest to manage are the students. That is for the simple reason that students are basically honest and idealistic. If one can touch the chord of honesty in them, the rest is relatively easy. That a large number of vice-chancellors, in fact the majority of them, fail to manage the students is a comment upon how they function.

To be able to manage students is an important part of a vice-chancellor's equipment. No less important however is his commitment to academic standards. If he can manage everybody, including students, the question to ask is to what end. If the end is to simply stay in office, it is, let it be said, an unworthy end. A university, unlike other social institutions, has to grow all the time. If it ceases to grow it will begin to stagnate.

In other words, unless both the qualities— the ability to manage people and commitment to high standards—are to be found in the same person the man in office would be inadequate for the job. Looking around one finds that though the combination of these two qualities is difficult to come by, it is not all that rare as some people would like to suggest. Going by the experience of the last few years I would say that this combination is to be found in 5-10% of vice-chancellors. That this is a small number only goes to show that either people have one quality or the other. But what is required for a vice-chancellor's job is that they both be found in the same person. And this, all said and done, is somewhat rare.

When one looks at the roster of successful vice-chancellors in recent years, one is surprised

(*Continued on page 445*)

**Secretary, AIU, New Delhi.*

Crisis of Higher Education
—Some Problems and Solutions

V. V. John*

What's wrong with our universities? A short answer to this question was provided a few weeks ago when a hundred and ten vice-chancellors assembled in New Delhi at the instance of the Ministry of Education. There, assembled cosily in Vigyan Bhavan, were a hundred odd reasons why our higher education is the way it is today. For, more than anything else in the university situation, what obstructs the healthy functioning of our universities is bad leadership.

The vice-chancellors assembled in New Delhi had brought with them a familiar alibi. They soulfully lamented political interference in the universities and implored political parties to keep off the campuses. The appeal would have been more impressive if so many of the vice-chancellors had themselves not owed their positions to the favour of political factions. A study of the behaviour of some vice-chancellors during the erstwhile Emergency, the Janata rule and the subsequent convulsions, would give us an idea of the sort of political detachment they are capable of. It will take some time for the effects of the example they have set for young people—of opportunism and sycophancy—to wear off.

The hierarchical system in our universities was presumably modelled along British lines, but it has acquired a dominance that is unknown and unthinkable in the land of its origin. We have on our own developed a tradition in which, in the so-called seats of learning, power is worshipped more devoutly than learning. Part of the evidence is provided by the recurrent squabble over the headship of teaching departments, the deanship of faculties and other positions that wield power and dispense patronage. It may also explain why, as foreign observers like Edward Shils and Max Beloff have noted more quickly than ourselves, India does not have what could be described as an academic community.

Note that we do not have thousands of good teachers and a vast number of scholars in various disciplines. But the warmth of fellowship and the sense of a common pursuit that add up to something far more than the sum total of individual endeavours, do not develop in a setting where the teacher and the scholar look beyond the world of learning for recognition and for rewards. The autonomy of universities, that should be sustained by the academic profession's capacity for self-regulation and its sturdy sense of accountability, is amongst us no more than a piece of imitative verbiage. Far from drawing any sustenance from his sense of accountability, the indolent academic is, at all times, calculating what he can get away with. And educational policy is controlled by persons who would, as someone said, change university laws at the drop of a Gandhi cap, so as to favour cronies or to get rid of inconvenient functionaries. A scrutiny of the convolutions of university legislation in recent years will disclose how foreign the concept of university autonomy is to our native genius.

The legitimate bounds of this autonomy are indicated by the responsibility that the Constitution lays on the Central Government for determination and coordination of the standards of higher education. This responsibility is expected to be discharged largely through the University Grants Commission. The record of the commission so far indicates, however, that while it understands the idea of 'grants', it has some difficulty in understanding what is meant by 'the determination of standards'. How else could one explain the lavish flow of grants to institutions that have diluted academic standards by lowering curricular requirements, condoning large-scale truancy and all manner of skulduggery in faculty recruitment, public examinations and development outlays ? How else could it happen that the commission deliberately discouraged the establishment of a full-fledged centre for research into our policies and practices in higher education ?

Long ago, I developed a theory regarding the availability of U.G.C. grants, which is yet to be disproved. The simple thesis was that you can get a grant for anything whatsoever, if you lobby long enough in Delhi; and your perseverance will be rewarded sooner if the project could be shown to be of but peripheral value. Rajasthan University promptly got a grant for its dubious programme in parapsychology, which had to be abruptly wound up after a while; it had to wait for more than 10 years before it could receive some assistance for its invaluable Index India.

When the vice-chancellors and the ministers of education met in successive sessions in Delhi, they seem to have been provided with the agenda papers of some previous year. That should explain why they settled down to discuss such themes as the ten-plus-two-plus-three pattern, the restructuring of undergraduate courses, an increase in the number of working days in colleges and universities, the correction of the perversities smuggled into textbooks, and the inculcation of values. Whoever is charged with the task of compiling a report of the proceedings, might find a more or less accurate record already tucked away in the archives of the ministry. We have gone round the same mulberry bush so many times in the last 20 or 30 years.

If the vice-chancellors and the ministers really meant business, they should, for instance, have gone beyond piously hoping that the number of working days in colleges and universities should be increased. Surely they know how it happens that some universities have been unable to work even a hundred days in the academic year, and that some have calmly added to the dereliction by abolishing all attendance requirements. On hundreds of campuses, facilities created at considerable cost to the public exchequer stay unused for weeks and even months, and functionaries continue to receive their wages from public funds month after month, without doing any work. A solemn decision to increase the number of working days without analysing what has led to the present predicament, did not need the high-power conferences that got together in Delhi.

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We should face the fact that hoodlums have taken over most of our universities and colleges. They seem to be the only people who are clear-headed enough to know what they want. And what they want is to ensure that no one gets an advantage over the idlers and the wastrels by attending to his studies. There is no longer anything clandestine about this conspiracy of the indolent and the incompetent against the more earnest sections of the young people who go to college. The method used is open, physical obstruction to honest people going about their work. The criminal barbarism of the *gherao*, which is the crude denial of a citizen's fundamental right to freedom of movement, is in some quarters attaining a certain degree of respectability as a new form of *satyagraha*. If there is no firm resolve by the guardians of the law to put down all physical obstruction to work in our universities, it is sheer hypocrisy or idiocy to talk of increasing the number of working days, let alone of the advancement of learning.

I am writing this during the later part of June, when according to the traditional schedule, the university examinations should all have been over, and their results, for the most part, announced. But on the campus where I began this two days ago, the examinations were still going on, and among other incidents, I learnt of trouble over one of the papers for the postgraduate examination in physics. This happens to be one of the few subjects in which our standards still retain some international respectability. And yet, several students walked out on the alleged ground that the question paper covered more than was prescribed in the curriculum, and one of the protesters went back to the examination hall and tore up the answer-books of two of the candidates who were taking the examination. The police were called and they took the protester away. The saddest part of the affair was that there was no revulsion among the students against the cowardly meanness of what he had done.

It is against this background that one should study the plentiful programmes that are being taken up for reforming examinations at the university level. These include: splitting up the academic year into semesters, replacing numerical marks with letter grades, internal assessment, question banks objective type tests, open book examinations and sundry other innovations, all of them pursued with such lack of conviction that an educational administrator could blandly declare at a conference (plagiarizing a French cynic): "The more things change, the more they are the same." The truth of this was borne out by a survey that one of the newspapers made a short while ago. There has, however, been one important change: university examinations have become increasingly unreliable as assessments of the proficiencies mentioned in the formal diplomas. Employers no longer take university degrees at their face value, but want to test degree-holders further, before offering them jobs.

One meaningful change would be to divest the universities of the obligation to hold general public examinations and to entrust such testing to more impersonal and specialised agencies on the model of the Educational Testing Service in Princeton, New Jersey. A university product could be expected to equip himself with two kinds of credentials, one issued by his college or university on the basis of the work done in the classroom, the laboratory, and extra-curricular fields, and internally assessed, and the other certifying his performance in external tests in subjects of his choice, conducted by a national testing agency. The foolish desire to get through university examinations 'somehow or other' and to obtain a degree however spurious, will diminish, as employing agencies, both in the public and private sector, begin to specify more clearly than at present, the skills they are looking for in recruits and to test them, instead of going by the degrees that the candidates have managed to obtain at the university.

This approach to job recruitment is already being adopted in many sectors of the civil service, except that the requirement of a degree is used as a means of reducing the number of possible applications. If this largely meaningless requirement were scrapped, universities would be able to return to their legitimate functions. These will no doubt include the imparting of skills that equip young people for various careers, but will also aim at much more. And as for career training, the young will have the choice of obtaining it at the university or through other means provided by a wide range of open learning situations. The universities could then be called upon to answer two searching questions : For imparting the skills and proficiencies that our degrees represent today, do we need the elaborate establishment and the vast resources that are now being pressed into service ? With the facilities now provided in colleges and universities, cannot much more be accomplished than is being done now ?

I would venture the generalisation that our universities will no longer be able to discharge their legitimate functions until they divest themselves of the routine of holding an endless number of examinations from year's end to year's end (Delhi's Registrar once claimed that he conducted 250 different examinations in an academic year !), and get out of the year-long obsession with student misbehaviour in examinations, and the timely publication of results. I may seem to ignore the original purpose for which the Indian university came into being, namely, to hold common examinations for a diversity of colleges, so as to ensure common standards and general acceptability of the credentials that students carried with them on finishing college. This was the origin of the affiliating university, which is an Indian invention, for nowhere else in the world (except Pakistan and Bangladesh which share the same tradition), are colleges content to coach students according to curricula determined by an external body which will also evaluate the performance of the students. This often produces an unedifying situation in which the university and the colleges continually try to outsmart one another. Latterly, the affiliating universities have found it impossible to ensure respectable standards, or even common honesty, in the conduct of examinations in the colleges. Whatever reason there once was for this kind of affiliating system has now vanished.

The right sort of organisation for the large Indian university, with numberless affiliated colleges, is to function as an association of colleges, each exercising whatever freedom it desires in the matter of curricula, teaching and examination, with the university performing co-ordinating and accrediting functions, so as to ensure that the clientele of the colleges is not fobbed off with sub-standard service. Dr. Zakir Husain had once suggested, in this context, "Let the colleges examine the students; we shall examine the colleges." In other words, autonomous colleges should become the normal unit in higher education, and the right standards will be ensured by the obligation of each college to provide courses and impart proficiencies that would make their students eligible for various careers or for more advanced courses. The colleges would evaluate the work of their students, and this evaluation would be supplemented by general examinations designed to test specific skills and proficiencies, such examinations being conducted largely outside the university system by agencies jointly set up by departments of education and by employing agencies.

Among the new platitudes that we are getting used to in educational discussion is the 'delinking' of degrees and jobs, the idea being that the employing agencies should refrain from looking for degrees, and look for skills relevant to the jobs concerned, which could be tested. When this matter was raised at the recent conference of education ministers in Delhi, the response of the wise men in the ministry was that a decision to delink jobs from degree requirements should await the efficient development of vocational courses at the 'plus-two' stage. This disclosed an amazing misunderstanding of the problem that was sought to be tackled.

The problem is the expensive irrelevance of the university degree for most kinds of jobs, and our habit of ignoring the simple fact that the skills needed for the jobs could be acquired outside the university system, and candidates should legitimately have the freedom to acquire them in whatever way or place they find expedient. A decision on this could be made without waiting for any radical changes in the formal system of education. In fact, the 'delinking' would hasten the development of more relevant and efficient career training in schools and colleges. One way to improve the formal system would be to confront it with challenges from non-formal sources.

The deliberations of the last conference of vice-chancellors were arid enough. They had met some months earlier and, prompted by the former chairman of the U.G.C., decided that the chief trouble with higher education was that the Plan allocation for it was most inadequate. They went and told the Prime Minister so. Considering the appalling wastefulness that even a casual observer notes in our higher education, we should in a way be thankful that there is not more money to waste. That there is no clear understanding of the issue involved in the funding of higher education, was evident during the more recent discussion that followed the Prime Minister's expression of unhappiness over the practice of privately run professional colleges in some states collecting enormous amounts as 'capitation fees'. Everyone duly agreed to deplore the practice, and the Minister of Education vaguely talked of Central legislation to put an end to the practice. Even as he spoke, the cautious phrases he used indicated that the promised legislation may come 'this year, next year, some time, never.' It looked as though the party in power at the Centre is unable or unwilling to discipline state governments run by the same party.

The discussion disclosed that the educational leadership in Delhi was not clear in its mind as to what precisely it was objecting to in the outcry against capitation fees. Was it objecting to the commercialisation of education by some managements making money out of running professional colleges, or was it objecting to students being obliged to pay the full cost of their education ? These are two different categories of objections. What is happening in some medical and engineering colleges in Karnataka, and in some medical colleges in Andhra, is the selling of professional education at a profit by favoured members of the ruling party, with the blessings of the state governments. If, however, we have a system under which the recipient of professional training pays the full cost of the training, instead of leaving the taxpayer to pick up the bill, would that be a scandalous arrangement ?

This should open up a discussion of the whole economics of our higher education. The present arrangement under which nearly four-fifths of the outlay on higher education comes from public funds, and students feel free to misuse and waste the facilities provided by the poor people of this country, needs re-examination. One proposition that could be considered is that, until we reach high levels of affluence, all post-secondary education should be provided to the young on a credit basis, with an obligation to reimburse the state as and when university men begin earning a taxable income. This re-imbursement could take the form of services that the state needs. The obligation to pay for what one receives from the common pool, will make an invaluable contribution to the restoration of responsible behaviour among young students in campuses up and down the country. This privileged group tends to forget that 95 per cent of their age group are unable to go to college. The sense of social obligation that will be promoted among the privileged five per cent through having to repay the state eventually in terms of cash or services, will be of immense value, far exceeding the money collected on this account.

Even when changes and new approaches are agreed on with great fanfare, it is hard to tell whether we mean business. A leading educational administrator once told me that we owe the perfection of most of our educational programmes to the fact that we have no expectation that they would be acted upon. Actually, most of our programmes are not even conceptually as wonderful as he supposed them to be. The reason is that our educational planning and endeavours suffer from an utter lack of ambition. The Education Commission, in one of its rare flights of rhetoric, warned us that great universities and timid minds do not go well together. The timidity can be discerned in many pages of the commission's own report. Its recommendations with regard to major universities, autonomous colleges and experimental schools are examples of such timidity. Its approach was to cautiously begin with a few universities, a few colleges and a few schools. This gradualism will ensure that the present generation will see no significant change in the quality of our education. It may be noted that nothing has happened in the 15 years since the commission's report was published.

There is insufficient recognition of the fact that education deals with the mind, and unlike change on the physical plane, changes on the intellectual and spiritual plane, which is what education is about, can be quick. In educational planning, we have got into the habit of reckoning financial outlays as the measure of our effort, and paying scant attention to the vast human resources that we are able to press into service. For instance, there are nearly 2,00,000 teachers engaged in academic work in the 4,000 colleges and 100 odd universities in the country. This is a sizeable band of potential scholars and scientists. It may have to be conceded that at the moment, most of them are not pulling their weight. Even in a more diligent culture than ours, Julian Huxley was obliged to lament that most people did not use even 10 per cent of their capacity. Our percentage would be even lower. But it will be a crime against the spirit of learning to write off a majority of our 2,00,000 university teachers as being unworthy of the role in which they are cast. We cannot hope to build a great educational system by underestimating the capacity of teachers or of students. The right way is to be ambitious, and to fill the academic community with the most unflinching ambition. □

[*Courtesy* : *The Indian Express*]

Who should run the universities ?

(*Continued from page 441*)

by the diversity of their backgrounds. While most of them have had a background of teaching, they have also been administrators, judges, D.P.I.s and even politicians. I know of one DIG Police who functioned successfully as vice-chancellor for several years and he had both these qualities. To say that these qualities are to be found in one category of persons to the exclusion of others would be to oversimplify. But obviously the bulk of them come from the background of teaching and that is now it ought to be.

Teaching, amongst other .things, means interaction with students. To learn to deal with them is an important part of one's professional growth therefore. Unlike other professions, say medicine or engineering, it is possible to administer a university without being well grounded in a particular discipline. One need not therefore rule out the possibility of 'others' also being vice-chancellors. In any case, there is less resistance of outsiders at this level in the teaching profession than in the case of the other professions. This is for two reasons.

Till recently teaching did not attract as much talent as these professions have been doing. To be talented and yet not to have one's talent recognised is a disconcerting experience. So much of the bitterness in this controversy comes from this undeniable fact.

Secondly, there has been a lot of expansion in teaching during the recent decades. The kind of stagnation which is being experienced by engineers and doctors for instance has not yet made itself felt in the teaching profession. After some years this may come to be experienced by those in the teaching profession as well. But then the source of it will be internal strains.

These strains are however much more prominent in the case of other professional people than in the case of teachers. For my part I sympathise with these professionals. One reason why we are not doing better as a nation is because professionalism is at a discount in our country. □

[*Courtesy* : *The Tribune*]

Vocationalization of Education in Kashmir

Jan Mohammad*

The need for bringing about a meaningful change in the educational system of the country has been felt by the educational authorities and the policy makers since the dawn of independence. Whereas a number of Commissions and Committees were set up by the Government of India for the purpose of improving the quality and content of education at the Elementary, Secondary and Higher levels, during the last decade in our State of Jammu and Kashmir also we have had the Bhagwan Sahay Committee Report, then a Conference of the teachers and educationists of the state convened in 1974 by Shri L.K. Jha, Chancellor of the University and finally a Round Table Conference convened in 1975 by Jenab Sheikh Sahab, Chief Minister of J & K State in which top most educationists of the country also participated. These reports have underlined the need for making our education purposeful, socially relevant and in accordance with the developmental needs and manpower requirements of the state. But inspite of their very comprehensive and laudable recommendations, it has not been possible to improve qualitatively or to restructure rationally our existing secondary or higher educational system.

The spectre of unemployment haunts our educated youth who in a large majority of cases are also unemployable. There is an uncertain future facing young persons particularly those receiving education in non-technical subjects and their number unfortunately is substantial. This is responsible for a sense of frustration among the student community and is mainly the cause of agitations, sit-ins and lock-outs in most of our colleges and universities in the country.

It is common knowledge that most of our students join colleges and universities not with a love for study or scholarship but only to secure for themselves a passport in terms of a university degree for a job in future. It is necessary therefore to devise for them vocational courses with some job orientation so that they can fit in and be adjusted in the economic set-up in which they are expected to live and work.

There are specific needs of development at the state/national level for which technically trained manpower is not available. There is need therefore to mesh abinitio the overall economic planning with educational planning so that the needs of the economy in terms of manpower requirements are visualised and identified in advance. In a developing economy like ours it is important to share the programmes of economic development with the young people so that their imagination and vigour can be brought to bear on the problems of the state. In this age of technically oriented and occuupational society we must have men and women with special vocational skills to help in the developmental efforts of the state.

To give an example from a foreign country like the U.S., before 1917, the educational system operated there under the assumption (as we assume in this part of the world) that providing students only with basic academic skills would enable them to qualify for all kinds of occupations. It was however, thought necessary in view of their scientific and technological development and vast opportunities available for young people to add vocational skills to the academic programmes and this was done under a federal legislation and the effort was expanded by further legislation until about 1976. In 1969, less than 20% of American Secondary Schools/College Students chose, vocational subjects. But today about 50% students are enrolled in vocational education curriculum and specialize in trade and industrial occupations, Business and Managerial occupations, health occupations etc. Federal funds for vocational education have increased substantially since 1917 and now total more than 3 billlon dollars annually. These funds are used primarily to pay the cost of buildings, equipment and instructional personnel required for programmes of vocational education. In Britain this programme is implemented under the scheme of 'Further Education'. In Sweden the liberal and job-oriented subjects have been continued at the university level. In Germany and East European countries, there is an increasing emphasis on work-oriented education.

In order to make a beginning in this respect and remodel our education according to the needs of our economy and the people, the U.G.C. introduced the idea of "Restructuring of Courses" at the undergraduate level suggesting that the two of the existing subjects be combined with a third subject having a direct bearing on the local and regional needs of the state. In our traditional and somewhat rigid educational system, the best that can be achieved in the present circumstances is to blend the liberal and vocational education in such a manner that a student is helped to work effectively in the future job of his life. The courses of study should visualize the end product and the skills required to in order to help a student to enter a particular sphere of employment with confidence and self-reliance.

A beginning on these lines was made in this university and the subjects of 'Electronics' and 'Fruit Preservation and Mushroom Cultivation', were introduced at the college level with the following combinations :

(1) Physics, Mathematics, Electronics; (2) Botany, Zoology/Chemistry, Fruit Preservation and Mushroom Cultivation.

In introducing these changes, the university felt some difficulty to the extent of not only providing

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**College Development Council, University of Kashmir.*

the facilities like books, equipment etc. to the colleges but more seriously the staff, competent to take up the challenge of teaching these job-oriented courses. This is so because M.A./M.Sc. degree holders in these subjects are not available locally or even nationally and the Principals of colleges were constrained to request the Physics and Botany teachers respectively in the above combinations to make efforts to teach these subjects in a manner they liked best.

While these job-oriented courses were selected to be introduced in a few colleges in the year 1976, the choice of these subjects was haphazard and random.

To take a comprehensive view of the problem and in the interests of giving an employment-oriented bias to our education system, a committee of experts was constituted which also consisted of Heads of Departments from the State Government, working in such sectors of our economy where job opportunities can be found for our young people. In this regard, in the first instance the following sectors which relate to our economy and have a direct bearing on it were identified. It was asserted that the possibility of finding jobs in these sectors are extensive and will continue to grow over the years.

Tourism: Kashmir is a tourist resort and tourists not only from the rest of the country but also from foreign lands come in their thousands to the Valley every year. It is the biggest industry in Kashmir and providing necessary facilities like accommodation, gastronomy, transport, health-care, entertainment etc. to our tourists is fundamental to this profession. The job opportunities both at the public and private levels are immense. This subject can be introduced at the undergraduate level with any two of the following subjects: History, Geography, Psychology, English, Modern Indian languages including Marathi, Bengali, Tamil, Telugu etc.

The students can take additionally a course in a foreign language of their choice. In the Tourism course, hotel management and catering will be emphasised. Besides publicity aspect of tourism will be stressed.

Forestry: Forests are called the green gold of Kashmir. Nature has helped the valley with extensive and rich forest wealth and the State Forest Department provides revenue to the State, which is estimated to be around Rs. 20 crores each year. The Chief Conservator of Forests visited the Campus sometime back and assured that medium level jobs could be provided to our young men (to those who have offered Forestry as one of the subjects at B.Sc. level) in substantial numbers. These jobs may be available for future promotion of forest wealth but may also relate to forest based-industries like Joineries, Sports goods, paper industry etc. Further the possibility of further promotion of forest wealth and therefore of more job opportunities can be found by relevant research in this field and making available such research and trained personnel to the department. This can be achieved either by deputing students for advanced studies to institutions of foretsry in the country or by opening a college of forestry in the Valley.

The University Council has already agreed to introduce this subject at the undergraduate level with the following combinations: Botany and Zoology; Botany and Geography; Botany and Geology.

Sericulture: It is one of the oldest industries of Kashmir and provides employment to a larger section of rural and urban population. It is estimated that about twenty five thousand families in Kashmir Valley are involved with this industry. The Kashmir silk is famous within and outside the country and it has a world-wide market. To plan the future growth and extension of this industry, it is important to provide it with technical and trained personnel and persuade our scientists to undertake intensive research with regard to the problems faced by this industry. This is important because among other problems, it is faced with the problem of identifying the race of the silk worm which is suitable to Kashmir or improving the length of the silk filament which has unfortunately come down. The State Government, have established a cell for research and development of Sericulture. Besides, the recommendation of the State Planning Commission for introducing this subject at the undergraduate level had been made some years back when some Japanese experts had visited the state a few years back. This subject can be combined with Botany, Zoology and will be very useful for the development of this industry. It was suggested by the Committee of experts that along with this subject, Textile Technology will be a viable alternative as enough emphasis is needed to be given at the stages of reeling, dieing, weaving, designing, fabric manufacture and in these jobs an educated undergraduate will be quite useful and the job potential is vast.

Electronics: It has been suggested by experts that Electronics has a great future in Kashmir because of its temperate climate, dust-free atmosphere and the artistic nature of its people having nimble hands to undertake such delicate work. Trained people at the lower, middle and higher levels will be needed in substantial numbers to run the anticipated electronics project to be built at the cost of Rs. 5 crores in the valley. The present syllabus offered by the university needs a drastic change keeping in view the technical aspect of the subject.

Horticulture: The importance of horticulture as a subject of study at the undergraduate level cannot be over-emphasized, Kashmir is famous for delicious fruits like cherries, appricot, strawberry, pears, apples etc. and the quality of these fruits is imcomparable at least at the national level. At the moment where thousands of tonnes of fruit is exported to the rest of the country and transport and packing material provide big problems, a huge percentage of fruit grown in the valley goes waste either because some of the fruit like strawberry, cherries or appricots are delicate and cannot remain fresh for a long time or in the case of apples or pears timely transport facilities are not adequately available and when these reach the Delhi market, they are usually sold at a throw-away price. A better way of avoiding this waste could be to preserve these fruits, to make jams and jellies and export these to the world market in particular to Arab countries.

Whereas the State Government is contemplating to open a few Jam and Juice factories, there is the possibility of having a World Bank project to undertake the work at a substantially big scale in the Valley. Young men in hundreds would be required as Junior/Senior Fruit Technologists in such ventures. The subject of 'Fruit Technology' and other ancillary jobs could be taught along with Botany and Chemistry in our undergraduate colleges.

Pharmacy: Kashmir is rich in herbs and medicinal plants and as yet no sustained effort has been made to run this industry on extensive lines and to make it economically viable. Every year medicinal plants worth lakhs of rupees are exported to other states and some small profit derived from it. But the chances of running it successfully and as a major industrial concern can only be possible if technical personnel in the field is available. If this industry is allowed to grow, it can provide job opportunities to a large number of young men, in particular to those who belong to hilly rural areas.

This subject can be introduced in the Government Medical College, Srinagar. They have agreed to shart a Diploma Course for students who have passed the 10+2 level examination as in the case of admissions to M.B.,B.S. and the duration of the course will be two years including the practical training in a firm or hospital. The diploma course can be enhanced to the level of B Pharm after a measure of success is achieved in running the diploma course. It was suggested that some paramedicinal courses like (i) Medical Laboratory Technology, (ii) Radiography could be started at the undergraduate level alongwith some medical science subjects.

Military Science: The justification for introducing this subject cannot be over-emphasized. In order to get Kashmiris in the mainstream of Indian life and thinking, it is important they should get adequate representation in our Army and other defence organisations. Although this subject has been introduced in other universities, both at the undergraduate and post-graduate levels, no initiative has been taken so far to introduce this subject in our colleges, whereas some effort has been made to organise N.C.C. programmes in one or two colleges of the valley and a few college teachers have also received some training, but as yet enough Kashmiris are not seen to be employed in official and other cadres in our army. Introducing this discipline could have helped in furthering the cause of national integration and provided the much needed jobs for the people of state in the Indian Army. Today defence studies are concerned more with high level technical knowledge, history, culture and Geography of other countries and a scientific temper on the part of an officer. Only bravery and physical strength may not play an important role in modern warfare. This subject can be introduced at the undergraduate level with any two of the following subjects: History, Geography, Economics, Political Science, English Literature, Modern Indian Language.

Rural Industrialisation/Banking/Co-operation/Agricultural/Handicrafts/Floriculture/Vegetable Seed Growing/Plant Protection/Sheep Breeding/Dairying/Environmental Studies/Library Science.

These can also be introduced with Arts and Social Science subjects and justification for introducing these subjects is obvious. They relate directly to our economy and have been taken up in other states of the country also. One of these subjects can be combined with any two of the following related subjects: Economics, History, Political Science, English, Zoology, Botany, Modern Indian Languages.

As a matter of caution, it is better to keep in view the following points before introducing these subjects at the college level:

(i) It is better in the beginning to limit the choice of such subjects. As providing trained personnel to colleges where these subjects are introduced keeping in view the local conditions as also to provide the equipment, technical books and other facilities may present some difficulties.

(ii) The vocational courses need to be attractive so that the students really offer them in reasonable numbers at the first degree level. The experience with regard to the vocational subjects introduced in colleges in this university as in other universities has been that not many students offer these subjects. The course should enable the student "to enter life with self reliance and confidence, well-equipped with general knowledge and relevent skills."

(iii) It should be ensured that the chances of employment to a student with this qualification are enhanced and guaranteed so that when he qualifies himself, he is ensured a reasonable job in our economic set-up. This assurance can only be given by the Heads of the departments of employing agencies in the State Government while recommending a course.

In order to impart some job-capability the student and to ensure that he does not take long in taking a job in an office to acquaint himself with the technical know-how of the vocation and can participate actively in the day-to-day working of the department, it may be advisable to award the B.A./B.Sc. degree with the new combinations only after a student spends three to six months after qualifying himself in the examination as an apprentice in a relevant public/private concern/department.

It is also suggested that a provision be made in the State Education budget for vocationalization of education and funds allocated in the Sixth Five Year Plan for the purpose. ☐

Criteria for Evaluating Teacher's Efficiency in the Universities

D.R. Portia*

One of the critical issues seriously engaging the attention of the universities of to-day is the question of evolving a suitable criteria for evaluating the efficiency of the faculty. In the present set up of the universities it must be said that there is no proper criteria for evaluating the efficiency of university teachers. On the other hand there is an excessive emphasis on publications. i.e. a faculty member's progress in the department is assessed by his publications in the professional journals. Since the publications of any teacher often depends upon his own personal research, naturally, he will be spending most of his time to produce as many publications as possible, by way of books, research publications, etc., which will no doubt help in improving one's self and thereby pave the way for his progress in the university. Personal research and publications are no doubt essential to generate new ideas in one's own field and to bring them into light since the university after all is the place for creating new ideas in all walks of life.

But this created a conflicting situation, because this emphasis on publications and personal research amounts to ignoring the real teaching efficiency of teachers in the classroom. It should be also remembered that the universities are also teaching institutions and have the responsibility of turning out scholars proficient in their fields. This naturally requires spending much time in wide reading and careful preparation of lessons bestowing much care and attention to class room teaching and other academic work pertaining to the same. This may not permit them to devote much time on research publications and the teachers of higher education are naturally finding this a conflicting situation and feel that emphasis on publications is coming in their way of teaching. The opinions of a few teachers who gave vent to their feeling on this issue have been given here as examples. 'University is not a research institution, if it is so there would not have been students' "a student approaches an experienced and good teacher but not a good reseacher." A good researcher need not be a good teacher. By good teaching you produce a large number of good students and by research (mostly routine) you improve your own position and hence the student indiscipline and unrest. "The primary responsibility of the teachers should be clearly defined. If it is teaching, there should be less emphasis on research for purpose of promotion.

As seen from the above statements there are conflicting opinions about the criteria for measuring the efficiency of teachers, some advocating the publication and others class room teaching. This tells us that there is no proper criteria to evaluate the efficiency of university teachers ! Keeping this in view a small study had been undertaken to find out the opinions of the faculty members of a university about this controversial issue and evolve a proper criteria to evaluate their efficiency.

Three major issues were given focus in this study. The teachers of the university are asked to state whether the emphasis on publications comes in the way of their routine teaching. Whether there should be some other criteria for evaluating their teaching efficiency and they should suggest some other criteria to evaluate the teacher's efficiency.

Whether the emphasis on publications comes in the way of their teaching ?

About the first issue only a few said that the emphasis on publications comes in the way of teaching efficiency and a large section however did not agree to this. This may be due to their perspective that the research publication will help in extending the frontiers of their branch of learning and thereby help them attain efficiency in teaching by letting the pupils have a wider perspective of the subject. It may be also perhaps due to their conviction that a good teacher is a good researcher. Hence it is clear from the study that teachers of the universities do not completely shun publications as a means of evaluating their efficiency.

Whether there should be some criteria to evaluate the teaching efficiency ?

About this issue the study revealed that a large section of the teachers accept that there should be some other criteria for evaluating the efficiency of teachers. This shows that a good proportion of the teachers feel that publications should not be the only criterion for assessing the proficiency of teachers of higher education. The same opinion was also expressed in the personal interviews with the individual teachers.

About this aspect the opinion of a senior professor has been recorded here. "As things stand today we do not have any criteria to evaluate the teaching abilities of teachers. A university teacher is to be judged by teaching in the first instance and publications in the second instance." According to another, 'good teachers are different from good researchers and hence both should be evaluated separately.

Criteria for evaluating the teaching efficiency

This study elicited the opinions of the teachers in the university under study about the ways and means

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Reader, Department of Education, Andhra University.

CAMPUS NEWS

Jammu Organises Master Degree Programmes

University of Jammu College Development Council held a seminar for 2 days on 20th and 21st July on key issues and reforms in relation to Master's degree programme of the University. Nearly 25 post graduate students and the faculty of different departments attended the two day seminar along with experts from outside. The main purpose of the Seminar was to review the working of semester system at the Postgraduate level implemented in the last two semesters. The seminar helped in identifying problems faced during the implementation of the semester system by students, teachers and administration. There were papers presented by the students relating to problems faced by them and also seeking solution to the same. Teachers in their turn drew attention to problems faced by them in implementing semester system.

The major problems identified related to :

Students

(a) Syllabus that is either too ambiguous or too ambitious:

(b) Methods of teaching were not geared to the objectives of semester, for example methods of teaching in the semester continued to the same as in the annual system:

(c) Continuous internal assessment, integral part of the semester system was inadequate in that it had only one component as assignment; students did not have faith in the teachers' assessment;

(d) There was no change in the semester examinations and they continued to be made of essay questions only. The semester examination question papers did not include any objective type or short answer questions.

(2) **Teachers**

(a) Inadequate number of working days leading to coverage of only a part of the syllabus;

(b) Lack of interest and motivation on the part of students towards internal assessment;

(c) Lack of support from administration.

(3) **Administration**

(a) Lack of understanding of the implications of the semester system on administration;

(b) Lack of awareness on the part of students and teachers;

(c) Lack of training for teachers in semester system implementation.

After deliberating on these issues the seminar recommended the following steps to be taken by the administration and departments for effective and better implementation of the semester system in future.

(1). The faculty in various departments be encouraged to produce detailed specific and reasonable syllabus for all courses in the form of course outlines for distribution to the students;

(2) The faculty in departments be encouraged to adopt more dynamic methods of teaching and the university will take steps to train them in the art and science of teaching methods as a preparation for better semester;

(3) The departments be encouraged to review continuous internal assessment in different courses with the idea that more components of the assessment be introduced including the assessment of ability/skills that are not assessed by the end examinations particularly such abilities like communication ability, ability to work in a team, or hard work, inventiveness, originality, regularity and the like;

(4) The faculty will be encouraged to keep the internal assessment open to students and in addition an Appeals Committee in every department to look after the grievances of students. The faculty will be also encouraged to keep internal assessment marks (or grades) separated from external assessment marks;

(5) The university will set up a semester implementation committee consisting of representatives from departments and some postgraduate students to implement the semester system smoothly.

Osmania reviews internal assessment

As a result of an emergent Academic Council meeting held on 6th January, 1981, a Committee on Internal Assessment was appointed by Vice-Chancellor, Osmania University to try and work out the modalities for the smooth implementation of the scheme of internal assessment to be adopted by the Osmania University in future. The Committee held its first meeting on 15th July, 1981.

The Chairman of the Committee, Prof. O.S. Reddi, Dean, Faculty of Science outlined the scheme of internal assessment as it obtains now in the Osmania University both at the under graduate and the post-graduate levels,

Prof. K.S. Upadhyaya, Principal, University College of Arts then detailed out the problems faced particularly by teachers in the past in the implementation of internal assessment in this University and among the problems he highlighted, the following are significant:

1. Teachers doing internal assessment of students are continuously under pressure to give more marks in internal assessment and this pressure is

usually from students who see that this is one of the easiests ways of improving their total marks or grades.

2. Some colleges also boost up the internal marks of candidates since the addition of internal marks to external university examination marks will bring them excellent results for the college.
3. Students very often absent themselves in internal tests and demand conduct of supplementary tests from teachers thus creating problems for the administration.
4. Teachers sensing that there is additional work involved in the systematic internal assessment, are also not keen to have this system of internal assessment.

Dr Bhaktavatsala Rao, Nominee of Director of Higher Education while agreeing with most of the things said by the others also felt that teachers who are the key persons in the implementation of internal assessment, must be oriented and trained in the concepts, mechanics and smooth implementation of internal assessment.

At this point, Prof. V. Natarajan of the Association of Indian Universities mentioned that these problems are similar to those experienced by majority of universities in the country and these problems are mainly due to;

(a) The concept of internal assessment being not understood properly;

(b) Teachers who are going to implement internal assessment have not been involved as a party to design internal assessment, to fix up objectives of internal assessment, weightages of components of internal assessment, monitoring assessment etc;

(c) Internal marks being added to external university marks;

(d) Internal assessment be confined to only periodical tests which are similar and watered down versions of end university examinations.

He then went on to define internal assessment in a totally different perspective. He felt that the abilities and the skills to be assessed in continuous internal assessment by teachers should be different from the abilities and skills that are assessed by the end university examinations. He strongly felt that continuous internel assessment in different subjects must have different components and weightages for these components. Of course, elements like interests, attitudes, personality traits like hard work, regularity, inventiveness may be common for continuous assessment.

He suggested that all the Committee members agreed with him that this continuous internal assessment must be introduced in all faculties at the postgraduate level and in certain select faculties like Sciences and Professional Courses at the undergraduate level after a thorough and adequate preparation of teachers, students, administrators and others in this matter.

The following plan of action is suggested for implementation of this scheme:

Stage 1 : Familiarisation of the basic concept of internal assessment in this new perspective is to be done for Academic Council members, Principals of Colleges and Deans of Faculties and Chairman, Boards of Studies.

Stage 2 : A leadership training workshop for very senior teachers from different colleges at the undergraduate level and from all departments at the postgraduate level to familiarise them with the basic concepts, design and implementation of internal assessment.

Stage 3 : A series of secondary workshops by the participants on leadership training programme in different colleges and faculties to train all others. At this stage, questionnaire filled up by all these participants will be available and the consensus with regard to the responses to these questionnaires will be worked out and designs for continuous internal assessment in various subjects and disciplines will emerge. The strength of this design lies in the fact that the design is worked out with the participation of all teachers who are going to implement the system. The strength would have to be seen in the ready aceeptance of this scheme and faith with which teachers will implement this scheme.

Stage 4 : At this stage, students have to be familiarised with the scheme of internal assessment, its usefulness and its implications. It is proposed to arrange for a Seminar with the students and also bring out a detailed leaflet giving details of continuous internal assessment in their subjects.

Stage 5 : At this stage, the preparotory work having been completed, the designs of continuous internal assessment are to go through the Academic bodies of the university, namely, the Boards of Studies and Academic Council for decisions for implementation.

Stage 6 : A continuous feedback by monitoring the system is essential at this stage.

The most important feature of this internal assessment in this perspective is that internal assessment will introduce grades and not marks for various abilities and skills assessed by teachers and therefore these internal grades will not be added to the external marks. This very fact that internal marks are not added to external marks will eliminate all the problems that the addition of internal and external has created so far. The only thing to be done is to convince students and teachers of the value of such an internal assessment in this perspective which is not a difficult thing to do.

Under these circumstances, the Committee recommends that such internal assessment with this new perspective will be introduced in the Osmania University in all the postgraduate courses and in a few select Undergraduate courses and this choice will be made at the end of the Principals' Conference. A preparation time of about a year shall be required to go through all the stages outlined above.

Autonomy for postal courses

A 3-day seminar on correspondence education was organised by the Directorate of

Correspondence Education at Simla. The consensus at a seminar was that the Directorate of Correspondence Courses in various universities should be given functional autonomy in the matters of printing of lessons budgets, transfers and appointments. About 30 delegates, including those from the universities of Panjab and Jammu participated. Dr K.P. Pandey, Director of Himachal University Directorate of Correspondence Courses said six study-cum-guiding service centres would be opened in Rohru, Daulatpur Chowk, Kalpa, Subathu, Thural and Sundernagar in the State.

Prof V.R. Taneja of Jammu University, stressed the need for finalising correspondence courses on the similar pattern as was done in the case of teaching departments of a university.

Prof Bakhshish Singh of Punjabi University said institutions like the U.G.C. should provide funds to the Directorate Correspondence Courses as they did not have the requisite funds. Maj Jeewan Tiwari, Director of Correspondence Courses, Panjab University, maintained that most of the problems of correspondence courses could be resolved by giving adequate representation to teachers on various academic and administrative bodies of universities. Dr L.P. Sinha, Vice-Chancellor of Himachal University, said a comparative assessment of the quality of education should be made through formal and non-formal means of education.

Joshi underlines costs of higher education

Prof Ram Joshi, Vice-Chancellor, Bombay University, while delivering the 11th John F. Kennedy Memorial Lecture in Bombay pleaded for equal opportunity and of widening access to higher education. He said that both in USA and India the rising cost of higher education had affected them adversely.

The Indo-American Society had organised the lecture on "Higher Education" in US and India—A Comparative Perspective."

Prof Joshi said during the last 20 years, enormous progress in higher education had been achieved in the US, largely due to laws guaranteeing the rights of minority students, low-income groups and women. In India, first-generation learners had only recently entered the field of higher education and found themselves totally at a loss in the new environment. The issue, he said, was quite complex since it involved considerations of the social justice on the one hand and academic standards on the other. Prof Joshi was not in favour of controlled access to higher education and urged remedial action in response to the needs of students. In his opinion, selective admissions would only amount to the perpetuation of privileges and the status quo.

Patiala organises Punjabi reference library

Dr Bhagat Singh, Vice-Chancellor of Punjabi University said in Patiala that the university had started building up a Punjabi reference library where all books, pamphlets, newspapers and periodicals published in Punjabi would be available. Already, the Vice-Chancellor said, about 4,500 books had been collected and over 100 periodicals and dailies had been subscribed to. Extensive search for rare Punjabi books had been launched and the back issues of important Punjabi periodicals would be purchased. The library of Vaid Mohan Singh, donated to the university, would be a useful section of the library. A separate building for housing the library is under the consideration of the university authorities. Besides, the university was trying to promote the publication of books and a periodical for children in Punjabi.

Madras to set up maritime institute

A national institute for maritime training and port management will be set up in Madras. Initially, the institute will take assistance from foreign agencies including UNCTAD. Mr V. Selvaraj, Chairman, Madras Port Trust, said that it was necessary that the port officials should be well versed in all aspects of shipping. Port officials could not anymore offer excuses like labour problems and cyclones to explain away the inefficiency of a port's operations. Mr Selvaraj said modernisation and mechanisation were necessary for proper management of the port. This need not mean unemployment as mechanisation would lead to increase in operations which in turn would lead to more employment. For the expansion of the Madras Port there were physical limitations. Hence it should be mechanised and adopt modern management systems. If these steps were taken it would lead to considerable saving in time and result in better turnround of ships. He stressed the need to acquire knowledge of port operations and referred to the four weeks training course in port planning jointly organised by the Shipping Division of UNCTAD and the Madras Port Trust. Twelve port officials from India, two from Sri Lanka and a delegate each from Bangladesh and Surinam participated in the course.

Addressing the valedictory function, Mr Michel Couroux, Programme Director, UNCTAD Shipping Division, said the main objectives of the course was to enable the participants to prepare complete project plans, analyse the proposals and then draw firm conclusions. Many ports experienced congestion and the overall progress of the fleet in developing countries had been very slow. Some of these problems were attributed to the shortage of qualified port on shipping managers. A UNDP/UNCTAD study to assess the training needs of managers of developing countries in maritime transport, revealed that there were about 60,000 managers in need of training. Mr Balasubramanian, UNCTAD shipping expert, said a cell had been opened in London by the International Chamber of Commerce to coordinate the activities regarding detections of marine frauds with the Inter-Governmental Mercantile Marine Organisation.

UP sanctions house rent allowance for degree teachers

The teachers of the degree and post-graduate colleges of Uttar Pradesh will get house rent allowance at Government rates. Mr G.K. Arora, Education Secretary of U.P. is reported to have given this assurance to a deputation of the Lucknow University Associated Colleges Teachers Association.

Medical facilities for retired PU staff

The Syndicate of Panjab University has decided to provide medical and pension facilities to its retired employees on the pattern of such benefits given to the retired employees of the State Government.

OU to start MTech in computer science

Osmania University would start from this academic year M.Tech. Post-graduate degree course in Computer Science. The intake will be 20 students and each student will be given a scholarship of Rs. 600 per month. The course will be open to B.E./B.Tech. and M.Sc. (Maths/Physics/Statistics) degree holders.

Punjabi varsity concession

Any person passing the B.A. examination from Punjabi University hereafter will be allowed to reappear within a period of three years in the same examination for the purpose of improving his or her score. However, this concession will be available in a restricted form to persons who have passed the M.A. examination. They will be allowed to reappear in only such of B.A. subjects as had not been taken up by them earlier in the B.A. examination.

Principals for reshaping of UG courses in Madras

College Principals of Madras were near unanimous about the need for restructuring undergraduate courses. The proposal was discussed at the last meeting of the Senate of the Madras University. Mr G.R. Damodaran, Vice-Chancellor referred to the recent conference of the Vice-Chancellors in Delhi and said the UGC wanted universities to restructure the first degree courses with an eye on relevance. Foundation courses, core programme, and applied studies or projects formed the essential ingredients of the suggested restructuring, he added. He wanted a feedback from the principals so that the Syndicate could prepare a note and place is before the university bodies.

While the principals appreciated the need for restructuring the first degree courses consequent to the introducion of the higher secondary stage of education, they also pointed out that in an earlier attempt in this direction the university could not succeed due to certain difficulties. It was necessary to educate the principals with the details of restructuring and a comprehensive planning may be done in this direction.

Violence in educational institutions in Kerala

Leaders of various political parties in the Kerala Assembly have expressed grave concern over the mounting violence in the educational institutions and called for stringent action to curb the activities of students, who come to the campus armed with daggers and cycle chains. They demanded that such students and outsiders, who entered the campus to incite violence should be treated as common criminals and arrested. They also deplored the role of the political parties in encouraging campus violence and wanted the Government to implement strictly its decision to prevent entry of outsiders within the university campus.

Summer institute in Anthropology

A summer institute on modern trends in Anthropology was held at Gauhati University recently. The institute was sponsored by the University Grants Commission and was inaugurated by Prof J.M. Choudhury, Vice-Chancellor of the University. About 29 experts from North East India, West Bengal and Orissa participated. Lectures on 22 different topics were delivered by the academic staff of the University.

In addition to lectures group discussion, practicals and four seminars on (a) Racial History and Ethnic Variation in North East India, (b) Culture and Fertility, (c) Anthropology at College level and (d) Problems and prospects of Anthropological Research in Eastern India were also held at the institute.

Remedial education for SCs and STs

The Bombay University will soon introduce remedial education for Scheduled Castes and Tribes students to make them fit for competitive examinations. Prof Ram Joshi, Vice-Chancellor made these remarks while launching the University's post-centenary silver jubilee celebration in Bombay. He said that the University proposed to start Geology and Philosophy departments soon.

Plea for Kannada in US Varsities

Dr A.K. Ramanujam, Professor of South Asian Languages, Chicago University, has pleaded for the development of Kannada in the United States. He was presiding over the fifth Northern United States Kannada Conference held at New York recently. He pointed out that Kannadiga children had lost touch with older generations. He said a language flourished only when there was a necessity for it. The social order of the US being different from the one prevailing in the motherland, the continuance of Kannada as a spoken language in the U.S. was open to doubt. He suggested that foundations be instituted in American universities for Kannada studies and Kannadiga children be encouraged to study the language. He also felt translations of Kannada books would help foster the language.

Mr Girish Karnad, film-maker and playwright, who was the chief guest at the conference, said, Kannadigas in the US were haunted by a feeling of separation similar to the motif of Ramayana. Dr. Chandrashekhar, President of the U.S. Kannada Koota, underlined the need for organisations of linguistic minorities. He said every linguistic division had its own cultural heritage and it was necessary to foster it. Dr Anand Mohan, Professor of Philosophy, Queen's College, New York, Prof S.N. Sridhar, of Stony Brook College, N.Y., Prof Lakshminarayan Bhat, of Boston University, and Mr Sathya Vishwanath, Vice President of Kannada Koota, also participated.

Two endowments for Gauhati Varsity

The Gauhati University has accepted two endowments during this academic year. The first of these endowments is a fund of Rs 90,000 to be named Ambika Nath Borah Memorial Research Fellowship for awarding Research Fellowship in the Department of Assamese. The fund has been donated by Srimati Lilaoti Dutta, Sri Biswanath Borah and Sri Kripanath Borah, daughter and sons of late Ambika Nath Borah. The second endownment is of Rs. 10,000 to be named Dr Jamuneswar Choudhury Prize for awarding prize annually to the best student securing highest marks in physiology in the MBBS examination of the University. The donation has been made by Srimati Gita Choudhury, widow of late Dr J. Choudhury.

West Bengal to introduce practical-oriented courses

The West Bengal Government is trying to introduce practical-oriented curriculum in different courses, keeping in view the vast magnitude of the unemployment problem. The Minister for Higher Education, Mr Sambhu Ghose said in Calcutta that he had called the Vice-Chancellors of different universities for a discussion in this regard. He said that Vidyasagar University at Midnapore would have practical-oriented courses from its very inception. The meeting would also discuss the feasibility of introducing post-graduate courses in colleges, besides introduction of M.Phil course in all the universities.

New educational programmes in UP

Mrs Swarup Kumari Bakshi, U.P. Education Minister said in Lucknow that a sum of Rs. 338 crores has been sanctioned for the expansion of educational programmes. The programmes will include extending of educational facilities to far-flung rural areas to achieve the goal of 100% literacy. She said that all-out efforts were being made to open a primary school within a radius of 1-1/2 km and a junior high school within 3 km of every village. Mrs Bakshi expressed concern over the lack of proper buildings for a number of primary schools in the State. She however commended the work of the U.P. Development Systems Corporation and said that it was constructing good school buildings at a low cost in rural areas of the State.

Code of conduct for students union members in TN

The Tamil Nadu Government has finalised a detailed code of conduct for the office-bearers of Students' Unions and other associations functioning in colleges. This follows the guidelines issued for regulating the conduct of college elections. The code is to be formally approved after the Education Minister has examined it.

IIT Delhi gets SBI endowment

The State Bank of India has allocated an endowment of Rs. 6 lakh to establish a professorship of bio-medical and rehabilitation enineering in the Indian Institute of Technology, Delhi. Dr Dinesh Mohan a graduate of IIT Bombay has been selected for the chair. He has specialised in the mechanics of human engineering and has been doing research on accidents and injuries for the past several years. The establishment of the chair will encourage research and development work in bio-medical engineering with particular emphasis on the rehabilitation of the disabled.

Karnataka VCs' meet to discuss exams

The Karnataka Government would shortly convene a meeting of Vice-Chancellors in the State to evolve a scheme to bring about uniformity in conducting examinations simultaneously. The Education Minister Mr Shankara Rao informed the members of the Legislative Council accordingly.

Separate department for ocean development

A new department for ocean development has been created to ensure and co-ordinate the exploitation of sea-bed resources. The new department has been constituted following the assurance given by Mrs Indira Gandhi, during the debate in the Lok Sabha on the demands for grants of the Defence Ministry.

NIS to publish Asian Games encyclopaedia

A Sports encyclopaedia which will focus information primarily on the Asian Games, is being compiled by the National Institute of Sports, Patiala. The encyclopaedia would carry up-to-date records in different disciplines in Asian Games and other international meets and will come handy during the ninth Asiad. Mr R.L. Anand, NIS Director, said it would also give information about important rules of the games and their interpretation. The edition would be released this year in connection with the 20th anniversary celebrations of the NIS. It would also contain the who's who in world sports.

NSS camp opened in Vizag

About 1000 NSS students from 40 colleges belonging to Andhra, Osmania, Sri Venkateswara Universities and also NSS students from Orissa participated in a ten-day 'youth for ecological development programme' which was inaugurated at Madhavadhara area in Visakhapatnam city by the Vice-Chancellor of Andhra University Mr A. Sambasiva Rao planted a sapling to mark the inauguration. He exhorted the students to develop a spirit of selfless service to the society through NSS activities.

During the ten-day camp the NSS students undertook tree plantation on the barren hills around Visakhapatnam and visited house to house to motivate the housewife to plant sapling around the house.

The special adviser of the NSS in Andhra University, Prof K.V. Ramana said that such camps would not only infuse a spirit of dignity of labour in the students, but also help mutual understanding among students who came from different parts of the country.

News from Agril. Varsities

Plea for modernising farm research

The modalities of Indian agricultural research should be reviewed periodically and modernised for optimum results. Inaugurating a three-day national workshop on agricultural problems and future prospects, Dr O.P. Gautam, Director-General, Indian Council of Agricultural Research, asked the agricultural scientisis to investigate into the reasons for slow development of the farm economics discipline as a whole. The problems that the agricultural economics sector faced, Dr Gautam said, were four-fold—including achieving high yield production of crops, protection of standing crors against disease and conservation of existing agricultural development projects. The energy crisis, was a major constraint, and an economically viable alternative would have to be sought. There was some lacuna in the available technologies. Many farmers did not accept these as they were not viable.

Welcoming the ICAR director, Indian Agricultural Research Institute, Director, Dr H.K. Jain, said low yield per hectare of land was because of the lack of proper management. Agro-support services—seeds, fertilisers, pest control water and soil management would have to be stepped up. Dr Jain called for the formation of an oil-seeds corporation to bridge the need between demand and supply of oil-seeds. To wipe the present deficit of edible oil, Dr Jain felt, production would have to be raised by 30 to 50 per cent in the next five years.

In a keynote address on evaluation of agricultural technology, Dr S.K. Ray of Institute of Economic Growth, suggested that a careful evaluation be made of available water resources. Water management and drainage had not, been given due importance in the Sixth Plan. The workshop was organised by the Division of Agricultural Economics of IARI.

Need for extension farm teachers stressed

A wider and more intensive use of trained extension teachers with sound knowledge of agriculture who know to work with rural people, guide and encourage small farmers for the utilisation of material, man-power and agricultural resources is the need of the hour. Mr N. Bhaskara Rao, Minister for Agriculture of Andhra Pradesh made these remarks while speaking at the APAU Campus at Rajendranagar. Dr A. Appa Rao, Vice-Chancellor in charge Andhra Pradesh Agricultural University (APAU) presided over the function. Mr N. Bhaskara Rao eulogised the services of the APAU in general and the farm teachers in particular for having developed more than 80 new varieties and added that farm teachers have to rededicate themselves to the cause of the rural poor and help achieve the social responsibility vested in them. In his presidential address Dr Appa Rao, while focussing the attention to the declining standards of education, urged the farm teachers to keep up the standards of the agricultural students—the scientists of tomorrow.

HAU experts for Orissa

The scientists of Haryana Agricultural University have been invited to Orissa for advisement for developing the agricultural university there. This invitation was extended to the scientists by Mr Basudeva Mahapatra, Minister of Agriculture and Cooperatives, Orissa, who visited Haryana Agricultural University recently. In a discussion with the senior scientists of the University, Mr Mahapatra also discussed the prospects of starting a College of Home Science in a State which at present does not have such a college.

Complimenting the Vice-Chancellor, Dr P.S. Lamba, for the research achievements of the University, Mr Mahapatra said that this renowned university which had a place of pride, was a source of inspiration for other sister institutions in the country.

He sought the advise of the extension specialists for solving the problems of rehabilitation of the poor section of farmers in Orissa by introducing intensive cultivation and diversification in agriculture.

Australian parliamentary delegation visits PAU

A parliamentary delegation from Australia consisting of Mr A.J.F. Macdonald and Mr L. Kent visited the Punjab Agricultural University recently. The members of the delegation showed keen interest in the work of plant breeding and animal reproduction at the University. On a visit to the Department of the Soils, they said that like Punjab parts of Australia had an acute soil salinity problem and they were very much interested in the success achieved by Punjab in resolving that problem. At the College of Agricultural Engineering the MPs were impressed by the fact that Punjab made so many agricultural machines suited to its own needs like the wheat thresher, a prototype of which did not exist anywhere else in the world. At the mushroom research station they wanted to know whether like Australia Punjab grew wild mushrooms also. They were told that it did. The delegation also visited village Dhandra to see rural development work and some local industries.

News from UGC

Dr. Shah wants sick colleges to be closed

The University Grants Commission Chairman Dr. (Mrs.) Madhuri Shah has suggested that universities should check proliferation of sick colleges. She said nearly 30 per cent of about 4500 colleges in the country were academically non-viable. Such colleges should be closed and their buildings utilised for evening classes or short-term courses. She felt the universities concerned and State Governments should survey an area before opening a college to ensure its academic viability. The Commission however is now giving due consideration to social and educational needs of the community. Colleges set up for the purpose should also maintain standards and academic viability. The criteria of academic viability should be relaxed for colleges to be located in tribal areas. The UGC has favoured merit-cum-reservation in enrolment of students. The Commission has also suggested that the Centre consider delinking degrees from jobs on the basis of educational requirements of the various occupations and in-service facilities in these occupations.

Dr Shah said the importance of English should be taken into consideration while introducing regional language as media of instruction. The Commission has set up a new standing committee to monitor effectively the implementation of the regional language programme. It has provided guidelines to the universities for restructuring their courses in the light of the introduction of the plus two pattern at the high school level. There must be coordination of courses at all stages. The Commission's scheme to restructure courses has two important aspects: making the first degree courses more relevant to the rural environment and linking education to practical experience and productivity.

The Commission has also asked the universities to organise short-term courses for extension workers engaged in population education as a part of the continuing education programme. It has suggested that universities prepare their proposals on the basis of the guidelines for restructuring courses during the current plan. She said that much more is needed to be done for the promotion of women's education, especially in rural areas. The Comission provides higher grants to the universities for spread of women's education which has been hitherto neglected.

Science & Technology

IIT Madras introduces Apple based courses

A full-fledged course in satellite communications will now be conducted for Post-graduate students of Indian Institutes of Technology at Madras, Bombay, Delhi, Kanpur and Kharagpur, using the communications satellite Apple, which is ready for experimentation. Specialists will deliver over 40 lectures on various aspects of satellite communications and these would be heard by students at the different centres simultaneously through the use of the satellite.

The course would last 15 to 20 days. Prof J.P. Raina, Head of the Television Engineering Laboratory of IIT Madras, who is co-ordinating the programme with the Indian Space Research Organisation, said 25 students at each of the five centres would undergo the course, perhaps the first of its kind attempted anywhere in the world. The course differed from tele-conferencing, which was tried out in the United States five or six years ago. While tele-conferencing was confined to a few individuals, the Apple utilisation programme envisaged imparting training in highly technical subjects to large groups of professionals scattered all over the country.

Prof Raina said the objective

of the experiment was to test the efficacy of communications experiments and ascertain the feasibility of giving special technical courses to still larger groups. He pointed out that it was not possible to find enough high grade technical teachers to give special lectures to students in various parts of the country. If the course proved successful, this major problem could be overcome. He said the work on preparing the lectures for the course had been going on for a few months and would be completed just before the course began in 1982.

Students participating in the course, whether they are at Madras, Delhi or any other centre, would have the opportunity to seek clarifications from the lecturer through the satellite after each lecture. The lecturer would answer them on a "first come, first served" basis. The students would be able to see the lecturer on television sets installed in the lecture hall, but the teacher might not be able to see the students, as programmed at present. Video tapes of the lectures, prepared at the satellite applications centre, Ahmedabad and IIT Madras would be fed to Apple satellite and relayed back by the transponder in the satellite to the tracking stations in different parts of the country. These stations, in turn, relay them to the IIT campuses for simultaneous display in lecture halls. A major difference between the satellite communications course and the earlier SITE programmes was that the latter had no talk-back facility. Again the SITE programmes were primarily meant for the masses, whereas the satellite communications course was meant for a professional group at a high educational level.

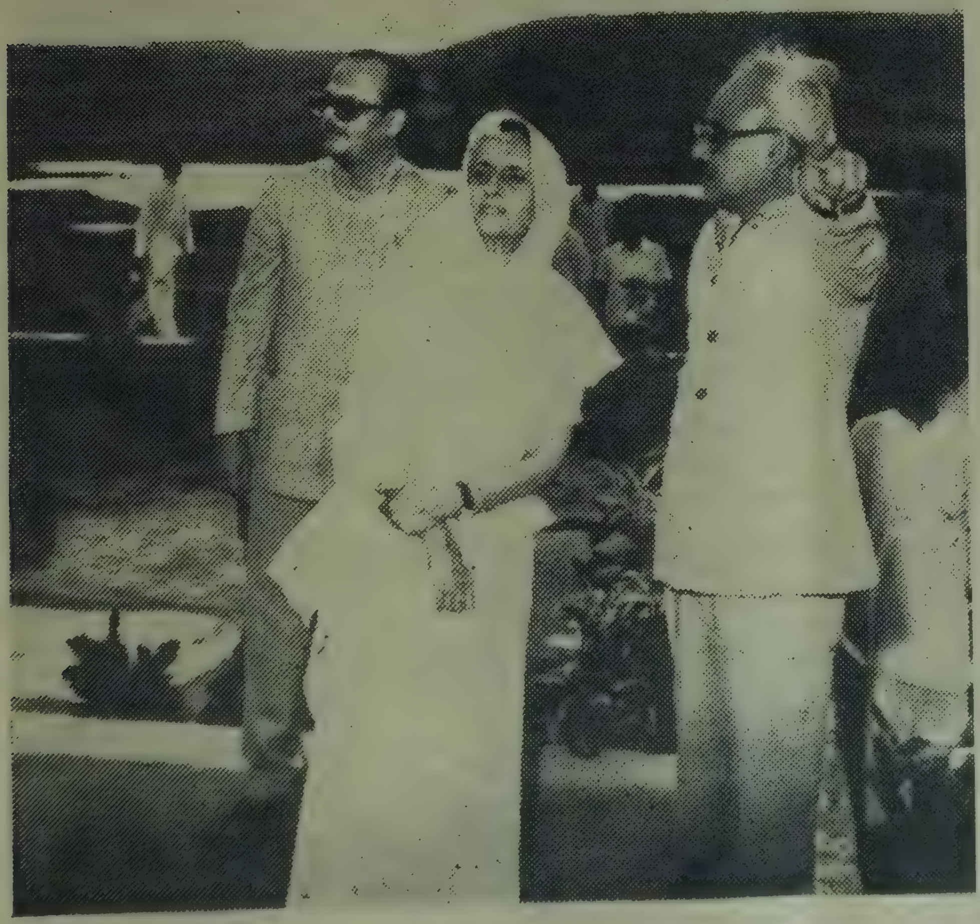
Prime Minister at Bhopal environment complex

Laying the foundation stone of the 'Environmental Planning and Co-ordination Organisation' at Bhopal University, the Prime Minister, Smt. Indira Gandhi, said that for the conservation of environment and for keeping the environment healthy and productive the people should be educated about it. Research in the field of environment is equally important and hence researches in this field should be taken up in hand. She complimented the Government of Madhya Pradesh for taking the lead in the sphere of conservation of environment and for setting up of an environmental complex, the first of its kind in the country. She further said that the work to be undertaken in the complex was very important for future.

The Prime Minister dealt at length on the various aspects of environment and said that the large scale denudation of forests has created environmental hazards. The task of protection and preservation of environment was not easy but once started it could be completed by creating proper awareness and thus maintain our traditions which gave much importance to nature. The land and other natural resources should not be exploited in such a manner that they become extinct.

The Prime Minister also saw the enthusiastic N.S.S. students—about 300 girls and boys of the Bhopal University, busy on the occassion in the extensive planting programme of chosen indigenous species in the campus during monsoon.

The Institute of Environmen of the Bhopal University, the first of its type amongst the Universities in India is an important part of the complex. The campus for this complex will be spread on an area of 50 acres of land. The cost of its development is expected to be of the order of Rupees three crores. With the objective to acreate public awareness with regard to environment, assist and advise the government in the management of human environment including human living conditions, pollution, biotic and earth resources, energy, hygiene and land use practices, assist in environmental impact studies, es-



Dr. Ravi Prakash, VC, showing the Prime Minister the site for Plantation of trees at Bhopal University Compus tablish information, documentation and retrieval services and provide facilities to Bhopal and other Universities for imparting doctoral and post doctoral studies. This Institute will undertake studies relating to specific environmental problems and assist in their solution.

IIT Delhi designs Devnagari video display terminal

Indian Institute of Technology, Delhi has designed and developed a Devnagari Video Display Terminal. The Terminal which is described to be first in India is capable of displaying the complete Devnagari script and uses a normal TV monitor for the display and the input is given by a typewriter-like keyboard. One keyboard is sufficient for a number of display units, if required. The Terminal has vast applications in the area of mass communication in Hindi and can be usefully employed at railway stations, airports trade fairs, Doordarshan, Hotels, large establishments, etc. This would eliminate the need of Vidicon Cameras, slides and Video tapes as presently used. Another important application of this display terminal would be in printing presses for photosetting, editing and composition of the text. The Display Terminal can also control the various functions like line feed, carriage return, back space, etc. With the help of the curser the text can be written and modified at any place on the screen. The Terminal is also capable of highlighting certain portions of the text by making it flash or putting it into reverse video or both. The technique employed is versatile and can be used to display any Indian Language by replacing a few components. In recent years there has been a considerable progress in English Video Display terminals based on raster scan (TV type) technique. The effort to use this technique for displaying Indian languages has been lacking primarily due to the complexity of the scripts which makes the mechanisation of the display difficult. Consequently, a special technique has to be employed to form composite characters, i.e. mixing of Matras with Akshras and half Aksharas.

The Terminal employs a microprocessor and some additional hardware to achieve display of composite characters on the screen, and costs about Rs 10,000 excluding the cost of TV monitor and the Keyboard. The cost is likely to go down further with the decreasing cost of integrated circuits and with mass production.

INSA awards for young scientists

The Indian National Science Academy has announced awards for 20 scientists aged below 32 for their achievements in various fields of science and technology Each of the 20 scientists, selected for awards for 1981 will receive a cash prize of Rs 5,000 along with a medal at the 69th session of the Indian Science Congress at Mysore in January 1982. The awardees may also be considered for research grants to enable them to continue research in their fields of action.

The following is the list of the awardees: Dr B.K. Chaudhury of Indian Association for the Cultivation of Science, Calcutta; Mr B.N. Chatterji of the University of Calcutta; Dr U. C. Das of National Geophysical Research Institute, Hyderabad; Dr J.B. Joshi of the University of Bombay; Mr C.P. Katti of New Delhi; Dr B.D Kulkarni of National Chemical Laboratory. Pune; Dr V.K.B. Kota of Physical Research Laboratory, Ahmedabad; Dr A. C. Kunwar of Raman Research Institute, Bangalore; Dr A.K. Lala of Indian Institute of Technology, Bombay; Dr Shukhada Mohandas of Sugarcane Breeding Institute. Coimbatore; Dr N. Nagendra of Osmania University, Hyderabad; Mr Prakash Nagarkatti of Defence Research and Development Establishment; Dr R. Nagaraj of Regional Research Laboratory, Hyderabad; Mr D. Pain of Indian Institute of Experimenta Medicine, Calcutta; Dr S. M. Srivastava of Indian Statistical Institute, Calcutta; Dr K. B. Sainis of Bhabha Atomic Research Centre, Bombay; Dr Kuldip Singh Sidhu of Punjab Agricultural Universitn, Ludhiana; Dr R.D. Tripathi of University of Gorakhpur, Gorakhpur; Dr K.P.R. Vittal of the All-India Coordinated Research Project for Dryland Agriculture, Hyderabad and Dr R.L. Yadav of Central Institute of Medicinal and Aromatic Plants, Lucknow.

Personal

1. **Dr. D. Bhasker Reddy has been appointed Vice-Chancellor of Nagarjuna University.**
2. **Dr. M. Abel has been appointed Vice-Chancellor of Sri Krishnadevaraya University, Anantapur.**
3. **Dr. S. Ramaseshan has taken over as the Director of the Indian Institute of Science, Bangalore.**

AIU PUBLICATION JUST RELEASED

1.	**Question Bank Book Series Pharmacology (Med.)**	**Rs. 35.00**
2.	**Monograph on Modernisation of Examination Results**	**Rs. 5.00**

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Chatterjee, Aruna. Finite spline approximation. University of Jabalpur.
2. Natarajan, P.N. Sequence spaces and matrix transformations over valued fields. University of Madras.
3. Paramjit Singh. A study of Nevanlinna's theory of meromorphic functions. University of Delhi.
4. Rangarajan, M.R. A study of univalent functions with special reference to holomorphic functions with positive real part. University of Madras.
5. Suryanarayanamurti, Ganti. Boolean centre of universal algebra. Andhra University.
6. Vittal, P.R. First passage problems and applications. University of Madras.

Statistics

1. Jain, R.C. Pseudo-Boolean programming and applications. Bhopal University.
2. Viswanathan, K. Limit distribution studies on stochastic models for time series with regression components and their statistical implications. University of Madras.

Physics

1. Balasubramanian, A. Studies on electron beam evaporated and ion plated indium oxide thin films. University of Madras.
2. Choure, P.S. Plastic behaviour and micro-structural deformation of solids under stresses. University of Jabalpur.
3. Kulkarni, S.V. Study of potentials and scattering in non-relativistic and relativistic quantum mechanics. University of Jabalpur.
4. Premachandran, S.K. Growth and characterisation of certain organic crystals. University of Cochin.
5. Raghunathan, S. Structural studies on biological molecules. University of Madras.
6. Rajaram, A. A study on the comparative tensile behaviour of collegenous tissues. University of Madras.
7. Saha, Somar Kanti. Electronic processes in evaporated bismuth antimony, tellurium and thermally grown bismuthoxide films. Gauhati University.
8. Shrivastava, R.K. Studies on thermally stimulated discharge current, iso-thermal charge decay and comparative study of electric and magnetic field in tubular magnetoelectrets of silastic and perspex. Bhopal University.
9. Sundaresan, N. Studies of dipole-dipole interactions by dielectric polarization and infra-red methods. University of Madras.
10. Susila, S. Studies in Pion photoproduction from nuclei. University of Madras.
11. Verma, Bhupendra Kumar. Electrical transport and magnetic semiconductors. University of Gorakhpur.

Chemistry

1. Adhikari, Syamal. Studies on interesterification reaction of fats for preparation of vanaspati, shortening and confectioner fats. University of Calcutta.
2. Antony, T.V. Study of substituent effects on the rearrangements of aromatic acetals by Lewis acids. University of Madras.
3. Balasubramanian, P.N. Metal complexes in solution. University of Madras.
4. Bandiwar, Rajan Kumar. Coordination compounds of transition metals Cu(II), Ni(II) with selected organic ligands. University of Saugar.
5. Bhagchandani, Pushpa. Physico-chemical studies of a bonded dialkyltin (iv) cations with N-(aryl cyclohexyl)—mercaptoacetamides. University of Rajasthan.
6. Chadha, Ravinder Kumar. Preparation and characterisation of complexes of cerium (III). University of Jammu.
7. Dave, T.N. Studies on iron exchange technique. Bhavnagar University.
8. De, Sibabrata. Studies on natural products. North Bengal University.
9. Deshpande, Chandrashekhar Vishwanath. Preparation and characterisation of rare earth complexes. Nagpur University.
10. Dongre, Vaijnath Govindrao. Polarographic studies in mixed ligand complexes. Marathwada University.
11. Gunasekaran, S. Kinetic and mechanistic studies on oxidations with bromamine-T. University of Madras.
12. Hemalatha, M. A study of some specific Schiff base ligands and their metal complexes. University of Madras.
13. Jain, Ramesh Kumar. Studies in the chemistry of some new tricyclic heterocycles. University of Rajasthan.
14. Jayasubramanian, R. Kinetics and mechanism of vinyl polymerization by thallium (III) salts. University of Madras.
15. Jesani, Jagdish Chandra. Kinetic studies on oxidation of organic compounds by quadrivalent cerium. University of Jabalpur.
16. Kannan, P.S.M. Cleavage reactions by halogenhydracids: A kinetic and mechanistic study. University of Madras.
17. Kannan, S. Chromatographic studies of the effect of substituents in aromatic monodentate ligands on the mobilities of transition metal ions. University of Madras.
18. Kannappan, V. Kinetic studies on the bromination of certain substituted thiophenes in solution. University of Madras.
19. Karunanithi, M. Kinetics of aromatic bromination in aqueous medium by potentiometry. University of Madras.
20. Konher, Suresh Narayan. Kinetics and mechanism of the hydrolysis of hydroxamic acids. Ravishankar University.
21. Maji, Santoshkumar. Synthetic studies on diterpenoids and related compounds and isoclovene. University of Calcutta.
22. Mundhe, Prakash Govindrao. Studies in liquid crystals. Marathwada University.
23. Murugan, P.K. Equilibrium studies on copper (II) ternary complexes of biological interest. University of Madras.
24. Nambi, K. Kinetics and mechanism of oxidation of aromatic acetals by chromic acid. University of Madras.
25. Nambiar, Jaya. Thermal degradation and entropy of fusion of polymers. University of Gorakhpur.
26. Nithianandam, V.S Immobilization of enzymes on synthetic copolymers. University of Madras.
27. Ojha, Pharindra Nath. Effect of admixtures on the hydration of cements. University of Gorakhpur.
28. Pitchumani, S. Studies on ethylacrylate-n-butylmethacrylate copolymers and their blends with chlorinated rubber as film forming materials. University of Madras.
29. Rama Prasad, Alladi Venkata. New triterpenoid constituents of Terminalla arjuna W & A. Andhra University.
30. Ravindranath, Kunta. Separation of valences of some chosen elements of first transition series by paper and thinlayer chromatography. University of Madras.
31. Ray, Ansuman. Photochemistry of anthraquinone-2 sodium sulphonate. University of Calcutta.
32. Shrivastava, Satya Prakash. Studies on plant products. University of Saugar.
33. Shukla, Chandra Shekhar. Studies on solid state chemistry of transition metal mixed oxide catalyst—copper chromite catalyst. University of Gorakhpur.
34. Singh, Harish Chandra. Mechanism and kinetics of solid state reactions. University of Gorakhpur.
35. Singh, Sechu. Synthesis of new 1,3,4-thiadiazole derivatives as potetional fungicides. University of Gorakhpur.
36. Sivakumar, R. Synthesis and stereochemistry of some 4-0 xanones and 4-0 xanols; carbon-13 shifts in 1-hetera-2, 6-diary 1-4-Cyclohexanones and the corresponding 1-hetera-

4-cyclohexanol—A conformational study. University of Madras.

37. Subhan, Jahanara. Graft copolymerization onto wool fibres by free radical initiators. University of Madras.

38. Susiah, S. Gnanasoundari. Covalent structural modification of proteins. University of Madras.

39. Tripathi, Shakuntala. Redox processes in solution with special reference to potassium paraxodisulphate. University of Jabalpur.

Earth Sciences

1. Hanumantha Rao, Lanka. Mineralogy and petrology of sapphirine-bearing and associated rocks of Paderu Area: Visakhapatnam District, Andhra Pradesh, India. Andhra University.

2. Koteswara Rao, Palakollu. Techniques of interpretation of magnetic anomalies due to simple geometrical bodies and magnetic surveys in parts of Chitoor District. Andhra University.

3. Ravindran, C.N. Biostratigraphic study of the Ariyalur group of Tiruchirapalli cretaceous rocks of Tamil Nadu based on foraminifera. University of Madras.

Engineering and Technology

1. Chitharanjan, N. Studies on the analysis, design and application of light weight concrete. University of Madras.

2. Gnanasundram. Studies in agitated vessels: Hydrodynamic studies with liquid-liquid systems. University of Madras.

3. Kumaraswamy, V. Studies on the properties of analytically designed concrete mixes. University of Madras.

BIOLOGICAL SCIENCES

Anthropology

1. Gopal Krishan. Study of parental consanguinity and its effects on anthropometric measurements and dermatoglyphic configurations among Sheikh Sunni Muslims of Delhi. University of Delhi.

2. Masthanian Naidu, Jammigumpala. A sero-biochemical genetic study of Brahmin and Khamma caste populations of coastal Andhra Pradesh. Andhra University.

3. Mishra, Rajendra. Inheritance and methodological study of planter creases. University of Saugar.

Biochemistry

1. Didolkar, Ashok Kashinath. studies on the role of prostaglandins on some aspects of male and female reproduction. Nagpur University.

2. Ghosh, Bijankumar. Studies on immobilized trypsin and papain on molecular sieve 4. University of Calcutta.

3. Mallika, M. Studies on polyphenol oxidases in relation to tannery effluent. University of Madras.

4. Panneerselvam, C. Studies on the metabolic regulation by Gymnema sylvestre R, Br in diabetic rabbits. University of Madras.

5. Ramakrishnan, Neeraja. Studies on arginine metabolism in arginineless mutants of Aspergillus nidulans. University of Madras.

6. Samudram, P. Metabolic regulation in glucose utilisation by Gymnema sylvestre, R, Br in diabetes mellitus. University of Madras.

Marine Biology

1. Weslem, S. Godwin. Ecology of the coastal fauna around the Madras Atomic Power Plant, Kalpakkam. University of Madras.

Botany

1. Abraham, Koshy. Anatomical studies in some umbellifers. Sardar Patel University.

2. Bandyopadhyay, Anusri. Chromosomal and cytochemical effect of tobacco extracts on different cellular systems. University of Calcutta.

3. Bansal, Yogendrakumar. The response of chromosomes to different chemicals in nuclei at different phases of growth. University of Calcutta.

4. Bharathan, S. Studies on Characeae. University of Madras.

5. Chakrabarti, Nibha. Studies on the physiology of some tropical edible fungi. University of Calcutta.

6. Dhingra, Suresh. Studies on some insect and mite induced plant galls of Rajasthan. Univessity of Rajasthan.

7. Goyal, Suresh C. Anatomical and morphological studies on some oil-yielding plants. University of Rajasthan.

8. Gupta, Asha Laxman. Ecological studies of herbaceous flora of Nagpur with special reference to Parthenium hysterophorus Linn. Nagpur University.

9. Jayaraman, P. Ontogenetic studies on plant gall induced by mites and insects. University of Madras.

10. Khanna, Rita. Studies on the production of antifungal antibiotics from soil microorganisms and screening for biological control of plant diseases. University of Jabalpur.

11. Lahirimajumdar, Asima. Tissue culture and structural studies on mammalian organ rudiments. University of Calcutta.

12. Mohammed Zuber. Studies on the physiology of hostpathogen interaction in sheath-blight disease of rice. University of Madras.

13. Nema, Dinesh Kumar. Studies on the host-parasite interaction in alternaria rot of apple fruits. University of Jabalpur.

14. Sambasiva Rao. Anatomical studies in cotton. Sardar Patel University.

15. Sheikh Afzalur Rahman. Palynological studies of some papilionaceous plants. Nagpur University.

16. Sundaram, R. Studies on the nitrogen nutrition of rice plants, Oryza sativa L. University of Madras.

17. Suresh Chand. Effects of herbicides on plant chromosomes and their chemical constituents under in vitro and in vivo conditions. University of Calcutta.

18. Thakuria, Smti Arpana. Infection of Carica papaya (L) fruit by certain fungi. Gauhati University.

19. Thevanathan, R. Assimilation of fixed nitrogen and asparagine synthesis in nodules of cluster bean, Cyamopsis tetragonoloba Taub. University of Madras.

20. Tripathi, Nijendra Nath. Fungitoxicity in some higher plants. University of Gorakhpur.

Zoology

1. Ambrose, P. Dunston. Bioecology, ecophysiology and ethology of scrub jungle from Tamil Nadu. University of Madras.

2. Deecaraman, M. Some aspects of reproduction in a stomatopod crustacean with special reference to accessory sex glands. University of Madras.

3. Desai, Ramachandra Harasingrao. Cytochemical studies on some cephaline gregarines. Karnatak University.

4. Fuladi, Bharat Motilal. Investigation on the systematic position and distribution of white fly, Aleurodid, fauna of different host plants in Vidarbha Region. Nagpur University.

5. Kalyanam, N.P. Microanatomy of avian alimentary tract. University of Madras.

6. Khatri, A.K. White backed plant-hopper, Sogatella furcifera Horvath damage in relation to yield of rice. University of Jabalpur.

7. Pashine, Karuna. Neuroanatomy and history of the major blood vessels of poikilothermal vertebrates. Bhopal University.

8. Pushpalatha, Maday Gita. Studies on the ecology, organization and histochemistry of the sea anemones, Anthopleura thalla (Gosse) and a new species of Bunddactis (Colenterata: Actiniaria). Andhra University.

9. Raj, Paul. Relative growth, tolerance of desiccation and anatomy of two species of ocypodid crabs showing different degrees of terrestrialness. University of Madras.

10. Sood, N.K. Studies on resistance of linseed to linseed bud fly, Dasyneura lini Barnes (Diptera:Cecidomyidae). University of Jabalpur.

11. Verma, Ashok. Endocrine regulation of feeding and reproductive behaviour of Spilostethus pandurus Scropoli (Lygaeidae: Hemiptera). University of Gorakhpur.

Medical Sciences

1. Bhatti, R.S. Social diagnosis in neurosis. Bangalore University.

2. Chandramouli, R. Psychoneuropharmacological studies on schizophrenia. University of Madras.

3. Chauhan, Prabhat Singh. Fabrication, formulation and evaluation of implants of antifertility hormones. University of Saugar.

4. Kabra, Vijaya. Determination of chemical composition and internal architecture of urinary calcute by histochemical methods. University of Rajasthan.

5. Ramachandran, V. Psychiatric disorders in subjects aged over fifty. University of Madras.

6. Sen, Jayati. Studies on the correlation of carcinoembryonic antigen and tumour specific antigen. University of Calcutta.

7. Singhvi, D.R. Biochemical studies in tuberculosis. University of Rajasthan.

8. Sivakumar, S. Neurophysical and neurochemical studies on temporal lobe epilepsy. University of Madras.

9. Thangavelu, P. Group B beta-hemolytic streptococci in health and disease in Southern India. University of Madras.

10. Venkataraman, S. Pharmacological profile of Gangetin: A pterocarpan isolated from the medicinal plant Desmodium gangeticum DC. University of Madras.

Agriculture

1. Birajdar, Jivan Marutirao. Planning pattern, spacing and intercropping in hybrid-4 cotton, Gossypium hirsutum L under rainfed conditions. Marathwada Agricultural University.

2. Kushal Singh. Population dynamics of Phytophthora cactorum (Lab and Cohn) Schroet in relation to soil factors and fungicides. Himachal Pradesh Krishi Vishva Vidyalaya.

3. Patro, G.K. Study of the effect of chemical and cultural methods of weed control on dwarf indica rice with different levels of fertilisation. Orissa University of Agriculture and Technology.

4. Rupa Kumar, Kolli. Agroclimatic conditions in Andhra Pradesh and the effect of weather anomalies on major crops. Andhra University.

5. Sangwan, Virender Singh. Potassium nutrition of maize as affected by magnesium, calcium and potassium. Haryana Agricultural University.

6. Sarkar, Amitabha. Genetical studies on some characters of silkworms and mulberry plants with reference to certain aspects of silk production. University of Calcutta.

7. Senapati, Bhagirathi. Studies on the development of insecticide resistance in Epilachba sparsa (Hb'al). Orissa University of Agriculture and Technology.

Veterinary Science

1. Mahadeo, Sangle Ekanath. Impact of improved dairy husbandry practices on the milk producting community in Dhule Taluka. Mahatma Phule Agricultural University.

Home Science

1. Vijayalakshmi, R. Imuact of nutritional interventions on expectant mothers and their offsprings. University of Madras.

ADDITIONS TO AIU LIBRARY

Appalraju, Jaya. *Educational facilities planning spatial interrelations.* Paris, Unesco, Division for Educational Policy and Planning (c 1978) iv, 67p.

Bacchus, M.K. *Education for development or underdevelopment? : Guyana's educational system and its implications for the third world.* Waterloo, Wilfrid Laurier University Press (c 1980) xvii, 302p.

Bantock, Geoffrey Herman. *Studies in the history of educational theory. V.1. Artifice and nature,* 1350-1765. London, Allen and Unwin, 1980. 309p.

Beard, Ruth Mary and Senior, Isabel J. *Motivating students.* London, Routledge and Kegan Paul, 1980. viii, 107p.

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Bennett, Nicholas. *Programming education for a better quality of life for all.* Paris, Unesco, Division of Educational Policy and Planning (c 1977) 44p.

Bronfenbrenner, Urie. *Ecology of human development : Experiments by nature and design.* Cambridge, Harvard, 1979. 330p.

Carr-Hill, R. *Education and basic needs : Views on concepts and measurement.* Paris, Unesco (c 1978) 33p.

Casassus, J. *Education and work : A review of major issues and experiences.* Paris, Unesco, 1976. 39p.

Castaneda, E. *International cooperation in education : The Guatemala experience.* Paris, Unesco, 1979. 48p.

Clegg, Stewart and Dunkerley, David. *Organization, class and control.* London Routledge and Kegan Paul, 1980. x, 614p.

Colclough, C. *Formal education systems and planning for poverty.* Paris, Unesco, 1976. 29p.

Coleman, John C. *Nature of adolescence.* London, Methuen, 1980. ix, 214p.

Cropley, Arthur John, ed. *Towards a system of lifelong education : Some practical considerations.* Oxford, Pergamon (c 1980) xvi, 219p.

Dergalin, I. *Educational facilities in relation to local and regional physical planning : A survey of the regional and planning norms.* Paris, Unesco, 1978. 68p.

Dockrell, William Bryan and Hamilton, David, ed. *Rethinking educational research.* London, Hodder and Stoughton (c 1980) 213p.

Hall, B. and Moulton, J. *Outline of the educational system in Tanzania.* Paris, Unesco, 1976. 25p.

Holmes, Brian, ed. *Diversity and unity in education : A comparative analysis.* London, Allen and Unwin, 1980. 173p.

Husen, Torstem. *School in question : A comparative study of the school and its future in Western society.* London, Oxford University Press, 1979. 196p.

Kallen, D. and Colton, S. *Educational developments in Europe and north America since 1960.* Paris, Unesco, 1980. 55p.

Kluczynski, J. *Trends of education policy in socialist countries.* Paris, Unesco, 1980. 54p.

Machlup, Fritz and Leeson, Kenneth. *Information through the printed word : The dissemination of scholarly, scientific and intellectual knowledge.* 3 Vols. New York, Praeger (c 1978).

Marga Institute. *International cooperation in education in Sri Lanka.* Paris, Unesco 1979. 40p.

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Moulton, J. *Outline of the educational system in Nepal.* Paris, Unesco, 1976. 16p.

———. *Outline of the educational system in the Sudan.* Paris, Unesco, 1976.

Naik, J.P. *Assessment of educational reform in India and lessons for the future.* Paris, Unesco, 1980. 75p.

Nisbet, John and Broadfoot, Patricia. *Impact of research on policy and practice in education.* Aberdeen, Aberdeen University Press, 1980. 86p.

Nyi Nyi. *International cooperation in education : The Burmese experience.* Paris, Unesco (c 1979) 52p.

Pandey, Rama S. *Child socialization in modernization.* Bombay Somaiya (c 1977) x, 191p.

Reiff, H. *Thoughts on educational models, indicators and external assistance.* Paris, Unesco, 1976. 41p.

Rowntree, Derek. *Assessing students : How shall we know them?* London, Harper and Row, 1977. ix, 269p.

Schiefelbein, E. *Education and employment in Latin America.* Paris, Unesco, 1979. 47p.

Sharp, Rachel. *Knowledge, ideology and the politics of schooling : Towards a Marxist analysis of education.* London, Routledge and Kegan Paul, 1980. x, 189p.

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Van Vliet, W. *Prospects of educational development in the O.E.C.D. countries.* Paris, Unesco, 1979. ii, 58p.

Velloso, J. *Educational planning and decision-making models in Brazil.* Paris, Unesco, 1978. 39p.

Von Haumeder, U. *Reflection on the future development of education : A selective and annotated bibliography.* Paris, Unesco, 1979. 74p.

White, Burton L. and others. *Origins of human competence : The final report of the Harvard preschool Project.* Lexington, Lexington Books (c 1979) xiv, 936p.

Wilson, Harriett and Herbert, G.W. *Parents and children in the inner city.* London, Routledge and Kegan Paul, 1978. x, 248p.

KONKAN KRISHI VIDYAPEETH

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(I) Faculty of Fisheries		
1.	Associate Dean	One post
2.	Associate Professor of Fisheries Technology	One post
3.	Assistant Professor of Fisheries Biology	One post
4.	Assistant Professor of Fisheries Engineering	One post
5.	Curator	One post
(II) Faculty of Agriculture		
6.	Professor of Plant Pathology	One post
7.	Assistant Professor of Agricultural Engineering	One post
8.	Assistant Professor	
	(i) Bio-Chemistry	One post
	(ii) Agril. Chemistry & Soil Science	One post
9.	Assistant Professor of Agronomy	Two posts
10.	Assistant Professor of Statistics	One post
11.	Assistant Professor of Animal Husbandry and Dairying	Two posts
12.	Assistant Professor of Veterinary Science	One post (Reserved for S.C./S.T./D.T. & N.T.)
13.	Assistant Professor of Agricultural Economics	One post (Reserved for S.C./S.T./D.T. & N.T.)
14.	Assistant Professor of Agricultural Entomology	One post (Reserved for S.C./S.T./D.T. & N.T.)
15.	Vegetable Breeder	One post (Reserved for S.C./S.T./D.T. & N.T.)
16.	Assistant Professor of Agricultural Extension	One post
Indian Council of Agricultural Research Scheme		
(A) Co-ordinated Scheme for Research on Water Management		
17.	Junior Scientist (Agricultural Engineering)	One post
18.	Junior Scientist (Statistics)	One post
19.	Junior Scientist (Soil Physics)	One post (Reserved for S.C./S.T./D.T. & N.T.)
(III) Faculty of Veterinary Science		
20.	Assistant Professor of Animal Nutrition	One post
21.	Assistant Professor of Pharmacology	One post (Reserved for S.C./S.T./D.T. & N.T.)
22.	Assistant Professor of Pathology	Two posts (One post reserved for S.C./S.T./D.T. & N.T.)
23.	Assistant Professor of Bacteriology	One post (Reserved for S.C./S.T./D.T. & N.T.
24.	Assistant Professor of Physiology	One post
25.	Assistant Professor of Anatomy	One post
26.	Assistant Professor of Animal Husbandry	One post
27.	Pathologist	One post

Pay Scales

1. For the post at Sr. No. 1, 6—Rs. 1500-60-1800-100-2000-125/2-2500/-
2. For the post at Sr. No. 2—Rs. 1200-50-1300-60-1900/-
3. For the posts at Sr. No. 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26—Rs. 700-40-1100-50-1600/-
4. For the post at Sr. No. 27—Rs. 680-40-1000-50-1250/-

QUALIFICATIONS

1. For the post at Sr. No. 1

Essential

After Ph.D. in Fisheries Science/Zoology/Marine Biology with thesis on Fisheries or Marine Biological Problem, seven years' experience in teaching or research in the Fisheries Science and/or Marine Biology as evidenced by published research papers or in extension education.

OR

After Master's degree in Fisheries Science/Zoology/Marine Biology, ten years experience in teaching or research in the Fisheries Science and/or Marine Biology as evidenced by published research papers or in extension education.

Experience in technical administration and ability to initiate and organize research essential.

2. For the post at Sr. No. 2

Essential

After Ph.D. in Fisheries Science/Zoology/Marine Biology with thesis on Marine Biological or Fisheries Problem, two years' experience in teaching or research in the Fisheries Science and/or Marine Biology as evidenced by published research papers or in extension education.

OR

After Master's degree in Fisheries Science/Zoology/Marine Biology, five years' experience in teaching or research in Fisheries Science and/or Marine Biology as evidenced by published research papers or in extension education.

OR

After Master's degree in Fisheries Science/Zoology/Marine Biology with ten years' total experience in Fisheries Science and/or Marine Biology as evidenced by published research papers or in extension education.

Desirable

Experience in Fisheries Technology.

3. For the post at Sr. No. 3, 4, 5

Ph.D. in Fisheries Science/Zoology/Marine Biology with thesis on Fisheries or Marine Biological problems.

OR

After Master's degree in Fisheries Science/Zoology/Marine Biology, two years' experience in teaching or research in Fisheries Science and/or Marine Biology as evidenced by published research papers or in extension education.

OR

Master's degree in Fisheries Science/Zoology/Marine Biology with a first class or equivalence C.G.P.A. either at Bachelor's degree or Master's degree level.

Note

(a) For the post at Sr. No. 3, experience in Fisheries Biology is desirable.

(b) For the post at Sr No. 4, experience in Fisheries Engineering is desirable.

4. **For the post at Sr. No. 6**

After Ph.D. in the respective subject, seven years' experience in teaching or research as evidenced by published research papers or in extension education.

OR

After Master's degree in the respective subject, ten years' experience in teaching or research as evidenced by published research papers or in extension education.

Desirable

Experience in technical, administration, ability to initiate and organize research.

5. **For the posts at Sr. No. 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26 and 27:**

Ph.D. in the respective subject.

OR

After Master's degree in the respective subject, two years' experience in teaching or research as evidenced by published research papers or in extension education.

OR

Master's degree in the respective subject with a first class or equivalent C.G.P.A. either at Bachelor's degree or Master's degree level.

Note

1. For the post at Sr. No. 15 the respective subject is Agricultural Botany.
2. For the posts at Sr. No. 12 the respective subject means Ph.D./Master's degree in any branch of Veterinary Science.
3. One post at S. No. 11 is sanctioned under the scheme for extension education for which knowledge of Marathi is essential.
4. For the post at Sr. No. 19, the respective subject is Soil Science.
5. For the post at Sr. No. 27, the respective subject is Pahology/Bacteriology/Parasitology.

For the post at Sr. No. 7, 17

Essential

B.Sc. in Agricultural Engineering/B.Tech (Agricultural Engineering)/or M.Sc. (Agri.) in Agricultural Engineering of any recognised University at least in second class.

Desirable

1. M.Tech. in Agricultural Engineering.
2. Basic degree in Agriculture.
3. Proficiency in spoken and written Marathi.

Note

1. Maximum age limit as on 10th September 1981 will ordinarily be 40 years for the posts mentioned at Sr. No. 1, 6, 2 and 30 years for the remaining posts. Maximum age limit is relaxable upto 5 years in deserving cases at the discretion of the University. The age limit is not applicable to persons already working in the services of this University.
2. The pay scales of the above posts carry equal allowances admissible as per the rules of the University.
3. Age relaxation for candidates belonging to S.C./S.T./D.T. and N.T./O.B.C. as per the State Government Rules.
4. If the response from highly qualified and more experienced candidates is adequate, those with less qualifications or experience may not be called for interview, even though they fulfil the minimum qualifications laid down for the posts.
5. The fact that the posts are advertised does not mean that all the posts will be filled in.
6. The application to be received through proper channel must reach this office within 15 days from the last date of submission of application.
7. The posts at Sr. No. 17 to 19 are sanctioned by the Indian Council of Agricultural Research for a limited period.
8. Number of posts may be increased or decreased.
9. Selected candidates can be posted and transferred at any of the campuses/centres under the jurisdiction of the University.
10. Nomenclature of the posts can be changed by the University as and when need arises.
11. Incomplete applications and applications received after the last date shall not be taken into consideration.
12. The application should satisfy all the requirements, i.e. qualifications, experience, etc. on or before **10.9.1981**.
13. Mere eligibility does not vest any right on the candidate for being called for the interview.

Canvassing in any form will completely disqualify a candidate for employment under this University.

R.B. Kumbhar
REGISTRAR

RANCHI UNIVERSITY
RANCHI

Advertisement No. 3 of 1981

Applications, on prescribed form, are invited from Indian Citizen for filling up vacant posts of Principals in Constituent Colleges, of the University and for preparation of panel. Some of the posts are reserved for women candidates.

Pay Scale

Professor : Rs. 1500-60-1800-100-2000-125/2-2500.

OR

Reader : Rs. 1200-50-1300-60-1900 plus an allowance of Rs. 150/- and rent free house or 10% of the Salary as house rent.

The posts also carry usual benefits as per rules of the University.

Minimum Qualifications

A first or high second class Masters' degree or equivalent degree of a foreign university with consistently good academic record and not less than twelve year's teaching experience, atleast as a lecturer in a degree College/University Department.

Provided that the scale of pay of University Professor shall be admissible only to those who possess the qualification of a University Professor and have been declared stable for appointment in that scale by the Selection Committee or who are already University Professor on the recommendation of the Commission. Provided further that for the purpose of teaching experience 15 years of experience in a degree college as Principal will satisfy the requirement in respect of 10 years teaching experience in Post-Graduate Classes.

Application forms can be had, free of cost, from the University Office, in person or by post by sending a self addressed envelope (23 cm x 10 cm) with postage stamp worth 0.50 paise affixed thereon with the words 'Application form for the posts of Principal' superscribed on it to the Deputy Registrar(II), of the University.

Applications, complete in all respects, on prescribed forms, alongwith required enclosures and a fee of Rs. 10/- (for S.C./S.T. Rs. 2/- only) in the shape of Crossed Postal Order payable to the Registrar, Ranchi University at Ranchi G.P.O. should reach the undersigned positively by the 15th September, 1981 till 4 P.M. Applicants already in employment should send their applications through proper channel or a No Objection Certificate from the employer should be attached with the application.

No T.A. or D.A. will be paid for appearing at the interview or for joining the post, if selected.

Canvassing in any form will be treated as disqualification.

D.P. Varma
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY
KANPUR

Advertisement No. 18/81

Applications are invited for the following posts in Computer Centre of the Institute in the pay scales noted against each :—

1. **Software Analyst Grade IV**
   Two posts (out of which one post is reserved for SC/ST candidate) Rs. 700-40-900-EB-40-1100-50-1300.
2. **Software Analyst Grade III**
   Two posts (out of which one post is reserved for SC/ST candidate). Rs 1100-50-1600.

Qualifications and Experience

1. **Software Analyst Grade IV**

(a) B.Tech. or M.Tech. in Computer Science.

OR

(b) B.Tech. in any other subject, M.Sc. in Mathematics, Statistics or Physics with two years relevant experience in Computer System programming which could be deemed as equivalent to (a) above.

2. **Software Analyst Grade III**

Qualification and experience same as for Grade IV plus four years experience in programming and Software development relating to operating system, system utilities and fixing of software bugs in multiprogrammed fourth generation time sharing Computer Systems.

Job Specification for Software Analyst

Developing and maintaining system Software and application programme. Maintaining and tuning operating systems, utilities, compilers etc. Diagnosing and rectifying software faults in multiprogrammed time shared fourth generation Computer System.

Note

(a) Applications from persons not having the prescribed qualifications but qualifications which can be deemed to be equivalent to the prescribed qualifications will be considered.

(b) Experience may be relaxed in the case of exceptionally well qualified candidates with demonstrated abilities.

(c) Persons not having the prescribed qualifications and experience for the post applied for but found fit for a lower position, may be considered for the lower position.

The Computer Centre has a fourth generation time shared DEC 1090 Computer with 28 terminals, 2 card readers, 2 line printers, 3 graphic terminals and a plotter. The memory consists of a core memory of 256 K words and 3 discs of 600 million characters and 3 tape drives. In addition there are IBM 1800, TDC 316 and two Micro 78 computers. The Institute has well stocked Library with more than 2,17,000 volumes and 1800 periodicals.

The Campus facilities include a Primary and Higher Secondary School, a Health Centre, Swimming Pool and a Shopping Centre.

Posts are permanent and carry retirement benefits in the shape of CPF-Scheme, CPF-cum-Gratuity Scheme or GPF-cum-Pension-cum-Gratuity Scheme as may be opted according to rules. The age of retirement is 60 years. During the first year, the appointment will be on probation. Besides pay, posts carry allowances according to the Institute rules which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to the exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare from the place of duty to Kanpur and back by the shortest route.

Applications from within India must be made on prescribed form obtainable free of charge from the Registrar of the Institute by sending a self addressed unstamped envelope of 25 cm x 10 cm size latest by **August 10, 1981**. Applications should be accompanied by a postal order for Rs 7.50 (Rs 1.87 for Scheduled Castes/Tribe candidates).

Applicants who are employed in Government, Semi Government organization or Institutes should send their applications through proper channel else they will be required to produce a 'NO OBJECTION' certificate from their employers at the time of interview.

Applicants from abroad may apply on plain paper enclosing a complete bio-data and names of three referees from whom reference letters may be obtained.

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016 (India) **on or before August 25, 1981.**

BANARAS HINDU UNIVERSITY

Advertisement No. 9/1981-82

Applications are invited for the undermentioned posts. The benefit of Provident Fund/Pension, Dearness Allowances, House Rent Allowances and City Compensatory Allowances are admissible according to University rules. The retirement age of University Employees is 60 years. The appointment will be made on two years probation on all permanent posts. Higher starting salary within the grade is admissible to specially qualified and experienced candidates.

Applications will be entertained on the prescribed form duly supported with a Bank Draft or Crossed Indian Postal Orders for Rs 7.50 in favour of the Registrar, Banaras Hindu University towards the application fee. Application forms alongwith the leaflet of information will be supplied free of cost by the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005 on receipt of Rs 0.60 paise stamped self-addressed envelope of 23 cm x 10 cm size. Candidates called for interview for these posts will be paid actual Railway fare by the Second Class plus reservation charges for sleeper, if paid, and/or actual Bus fare from the present residence bothways by the shortest route as per University rules. No other expenses will be paid.

Applications for each post be sent separately alongwith attested copies of certificates in support of the qualifications and experience mentioned in the application and be addressed to the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221 005.

Incomplete application in any respect will not be entertained for consideration.

Those who are in service should apply through proper channel, M.O. or cheque will not be accepted towards the application fee.

For the posts of Lecturers, other things being equal preference will be given to Scheduled Caste/Scheduled Tribes candidates who are considered fit.

Applicants may send their bio-data alongwith attested copies of all the certificates and details on plain paper alongwith the application fee of Rs. 7.50 in Bank Draft/I.P.O. to avoid delay in case they do not get the prescribed form in time.

Note : Number of vacancies are tentative and can vary according to needs.

Last date for receipt of application is August 31, 1981.

1. **Professor of Dravyaguna**—(One) (Instt. of Medical Sciences)

Grade: Rs. 1500-60-1800-100-2000-125/2-2500 plus N.P.A. as per rules.

Qualifications Essential : (1) A.M.S./A.B.M.S. or equivalent basic qualification in Indian Medicine recognised by the University. (2) D.Ay.M./M.D./Ph.D. or equivalent post-graduate qualification in Dravyaguna. (3) Experience of guiding post-graduate research. (4) About 10 years teaching experience in the subject in any recognised Institution. **Desirable** : (1) Original contribution and research publication in the subject.

(2) Qualifications in Modern Medicine and Sciences, (3) Ph.D. in Dravyaguna.

Note : Those who have applied earlier in response to Advt. No. 3/1981-82 need not apply again.

2. **Lecturer in Pathology** : (Four posts) (Instt. of Medical Sciences)

Grade : Rs. 700-40-1100-50-1600 plus N.P.A. as per rules.

Qualifications Essential : (1) M.B.B.S. or equivalent qualification recognised by the Medical Council of India. (2) M. D. (Path. & Bact.) M.D. (Path.), Ph.D. (Path.), Speciality Board of Pathology (U.S.A.) with dissertation (thesis in the field of Immunology / Immunopathology / Immunochaematology/Blood transfusion). (3) Three years teaching experience in the Dept. of Pathology, Pathology and Microbiology, Immunology, Immunobiology, Immunochaematology as Tutor/Registrar/Resident of which one year should be after Post-Graduate qualification. **Desirable** : (1) Specialised training in the field of Immunology/ Immunopathology / Immuno-biology/Blood transfusion/Immunochaematology. (2) Publications in the above fields.

Note : Those who have already applied in response to our earlier Advt. No. 9/1979-80 need not apply again.

3. **Lecturer in Surgery** (Urology) (One) (Instt. of Medical Sciences)

Grade : Rs. 700-40-1100-50-1600 plus N.P.A. as per rules.

Qualifications Essential : (1) M.B.B.S. or equivalent qualification recognised by the Medical Council of India (2) M.Ch. (Urology) or speciality Board of Urology (U.S.A.) or M.S./ F.R.C.S. in Surgery with two years special training in Urology (3) Teaching experience as Tutor/ Demonstrator/Resident/Registrar in the subject/speciality of which one year should be after Post-Graduate qualification. **Desirable**: (1) Research experience and publications in the subject.

4. **Lecturer in Rasa Shastra**—(one) (Instt. of Medical Sciences)

Grade : Rs. 700-40-1100-50-1600 plus N.P.A. as per rules.

Qualifications Essential : (1) A.M.S./A.B.M.S. or equivalent qualification recognised by the University. (2) M.D. (Ay.) (Rasa Shastra). (3) About three years teaching and/or research experience in the subject. **Desirable**: (1) Ph.D.—Rasa Shastra. (2) Original contribution and research publication in the subject.

5. **Professor of Education** (one) Faculty of Education.

Grade : Rs. 1500-60-1800-100-2000-125/2-2500.

Qualifications Essential : (1) Doctorate Degree or published work of a high standard. (2) A first or second class Master's Degree in Education or an equivalent qualification with Master's Degree in any other subject. (3) About ten years experience of Post-Doctoral Research and/or teaching of a University or College. (4) Ability to guide research of a high standard.

6. **Professor of Computer Science** (one) (Faculty of Science)

Grade : Rs. 1500-60-1800-100-2000-125/2-2500.

Qualifications Essential : an eminent scholar with published work of high quality, actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at Doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

7. **Reader in Computer Science** (one) (Faculty of Science)

8. **Reader in Geography**—(two posts) (Spl. Information and Data Processing and Computer applications and Statistical Geo-sciences) (Faculty of Science)

9. **Reader in Geography**—(one) (Mahila Mahavidyalaya).

10. **Reader in Political Science** (one) (Mahila Mahavidyalaya)

11. **Reader in Commerce**—(one) (Faculty of Commerce and Management Studies)

12. **Reader in Library Science**—(one) (Faculty of Arts).

Grade : Rs. 1200-50-1300-60-1900.

Qualifications Essential : Good academic record with a Doctorate Degree in the subject or equivalent published work.

Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years experience of teaching and/or research, provided at least three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding research work.

Desirable : (1) Specialisation in Accountancy of any other area of Commerce (applicable for the post of Reader in Commerce only).

(2) (a) Experience of teaching information Science. (b) Proficiency in teaching M. Lib. Sc. course. (c) Ability of guiding dissertation work. (d) Experience in editing or organising research publication.

(Desirable qualification No. 2 is applicable for the post of Reader in Library Science only).

Note

1. Other things being equal preference will be given to women candidates (applicable for the post of Reader in Geography (Mahila Mahavidyalaya) and Reader in Political Science (Mahila Mahavidyalaya).

2. Those who have applied in response to our earlier advertisements for the post of Reader in Geography (Spl. Information and data processing and computer applications and statistical geo-sciences), Reader in Geography (Mahila Mahavidyalaya) and Reader in Political Science (Mahila Mahavidyalaya) need not apply again but may send their latest bio-data.

13. **Reader for Theory of Music and Conducting Research** (one) Dept. of Musicology, Faculty of Performing Arts).

Grade : Rs. 1200-50-1300-60-1900.

Qualifications Essential : (1) First or Second Class Post-Graduate Degree in Musicology/ Comparative Musicology. (2) A Doctorate Degree or published work of an equally high Standard. (3) About five years experience of Post-Doctoral research and/or teaching at a University or College. (4) Ability to guide research. **Desirable** : (1) Comparative study of Major Musical Systems of the world. (2) Acquaintance with regional traditions of Music and other performing arts in India. (3) Proficiency in performance of Hindustani/Karnatac Music. (4) Publications.

14. **Lecturer in Dance** (**Kathak**) (one) (Faculty of Performing Arts).

15. **Lecturer in Mridangam** : (Karnatak Music) (one) (Faculty of Performing Arts)

Grade: Rs. 700-40-1100-50-1600

Qualifications Essential : (1) Consistently good academic record with first or high second class (B in the seven point scale) Master's Degree in relevant subject or an equivalent degree or diploma recognised by the University; and

(2) Two years research or professional experience or evidence of creative work and achievement in his field of specialisation or a combined research and professional experience of three years in the field as an artist of outstanding talent.

OR

A traditional or a professional artist with highly commendable professional achievement in the subject concerned.

Desirable : (1) Proficiency as a performer and knowledge of theory and history of Indian Music (applicable for the post of Lecturer in Dance (Kathak) only).

16. **Lecturer in Applied Arts**: (Communication Design) (one) (Faculty of Visual Arts)

17. **Lecturer in Applied Arts**: (Design) (one) (Faculty of Visual Arts)

Grade : Rs. 700-40-1100-50-1600.

Qualifications Essential : 1 (a) Consistently good academic record with first or high second class (B in the seven point scale) Master's Degree in the relevant subject or an equivalent degree or diploma recognised by the University; and

(b) Two years research or professional experience OR evidence of creative work and achievement in his field of specialisation OR a combined research and professional experience of three years in the field as an artist/Art Historian of outstanding talent.

OR

2. A traditional or a professional artist with highly commendable professional achievement in the subject concerned.

Desirable : High proficiency in Typography, Photography and Silk-Screen Printing.

18. **Lecturer in Political Science**: (one) (Faculty of Social Sciences)

19. **Lecturer in Hindi** : (Five posts) (Faculty of Arts)

20. **Lecturer in Hindi and English** : (one post) (Faculty of Oriental Learning and Theology)

21. **Lecturer in Veda** (one) (Faculty of Oriental Learning and Theology)

Grade : Rs. 700-40-1100-50-1600.

Qualifications Essential : (1) A Doctor's Degree or research work of an equally high standard.

(2) Consistently good academic record with a first or high second class (B in the seven point scale) Master's Degree (Master's Degree in Hindi for the post of Lecturer in Hindi and English and Acharya Degree in Shuklayajurveda for the post of Lecturer in Veda) in the subject or an equivalent degree of a foreign University with—

(a) English Literature at Graduate level—for one of the post of Lecturers in Hindi;

(b) Bachelor of Journalism—for one of the post of Lecturers in Hindi;

(c) Knowledge of English and Sanskrit at Graduate level—for the post of Lecturer in Hindi and English.

Desirable : (1) University level teaching experience. (for the post of Lecturer in Veda only).

Note : Those who have applied earlier in response to **Advertisement No. 38/1980-81** for the post of Lecturer in Hindi and Lecturer in Veda need not apply again.

Having regard to the need for developing inter-disciplinary programme, the degrees in essential qualification No. 1 and 2 above may be in relevant subject.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of vere high standard, it may relax any of qualification prescribed in qualification No. 2 above.

Provided further that if candidate possessing a Doctor's Degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's Degree or give evidence of research work of equivalent high standard within eight years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation : Candidates for being eligible for recruitment to the post of Lecturer must have a first or high second class (B in the seven point scale) at the Master's level and for determining high second class the mid-point between the minimum percentage of marks fixed by a University for award of second division and first division may be taken and for determining consistently good academic record an average of 55% of the two examinations prior to Master's Degree (Irrespective of the marks obtained in any of the two examinations) or 50% marks in each of the two examinations separately.

22. **Programmer** : (one) (Computer Centre)

Grade : Rs. 700-1300.

Qualifications Essential : (1) Master's/Bachelor's level Degree in Software Engineering or Master's level degree in application area.

Note : Educational qualifications relaxable in the case of applicants with long experience of working in an established Computer Centre.

23. **Professional Junior** : (one) (Central Library)

Grade : Rs. 700-1300.

Qualifications Essential : (1) M.A. (Sanskrit) First or Second Class or Acharya First or Second Class with English as a subject at the graduate level. (2) B.Lib. Sc/Dip. in Lib.Sc. First or Second Class with experience of handling cataloguing and preservation of manuscripts. OR 5 years experience of handling, cataloguing and preservation of manuscripts OR 5 years experience of handling, cataloguing and preservation of manuscripts in University or research Library.

Disrable : (1) Ph.D. published research work. (2) Knowledge of SHARDA and Persian scripts. (3) Extensive knowledge of ancient and medieval Indian authors and their work. (4) Will have to organize the manuscripts section consisting of 10,000 manuscripts mostly in Sanskrit (various scripts) on scientific lines. Will have to prepare a descriptive catalogue of these manuscripts and help and guide the research workers. Also will have to see that manuscripts are preserved properly.

Note : Those who have applied in response to our earlier Advertisement No. 20/1980-81 need not apply again.

Criteria for Evaluating Teacher's Efficiency

(*Continued from page 449*)

of judging the efficiency of teachers. Many valuable opinions were expressed and these have been sorted into seven categories. Their responses were analysed into the following categories and they are given here in the order of priority as found out in the study.

1. Evaluation committee of experts from outside.
2. Self Assessment
3. Performance of students in the examination
4. Publications as the chief criterion
5. Assessment of teachers by other teachers
6. By a committee of senior professors
7. Student evaluation of teachers.

Of these seven criteria, the most favoured was an evaluation committee of experts from outside. 'The second in importance identified is the 'Self assessment' the third is the 'Performance of students in the examination' and followed by 'publications as the chief criteria', Assessment of teachers by other teachers', by a committee of senior professors' and 'students evaluation of teachers', in that order.

A conspicuous trend visible is that majority of the teachers, irrespective of their faculty and cadre background approved evaluation of experts from outside. At an academic community they attach immense value to intellect, scholarship and academic proficiency and prefer to be evaluated by experts from outside in their own field. A committee of experts in various disciplines should be invited from outside to evaluate the work of the teachers of university. This will be relevant, reliable and in keeping with the standards and dignity of the individuals. But proper tools of evaluation should be evolved for this purpose. Some also prefer self assessment to other alternatives. But they should be in a position to make a periodic assessment of their work, teaching, research, publication etc. In order to ensure reliability of this procedure, some tools or proformas should be prepared according to which the teacher will assess his academic turn out.

And the least preference found in the present study, is with the student evaluation. Assessment by one's own students is gaining much weight these days and is being relished mostly by the American universities. It has also been attempted in some of our universities. But though it is gaining much importance and is being advocated by many educationists of the present day, is not accepted by many teachers for various reasons. Students, being immature, lacking depth and breadth of the subject matter may not be in a position to assess the efficiency of teachers. They could also be led away by other considerations like indiscriminate award of marks by the teachers and friendliness of some teachers even though they are poor teachers. But at the same time it must be said that students evaluation is an effective technique if it is implemented properly. For this purpose the following guidelines have been given by a few experienced members of the faculty.

They suggested student evaluation of teachers from the point of :

1. explanation and exposition of the subjects in the class;
2. inculcating critical and creative thinking in the minds of the students;
3. development of new teaching materials;
4. development of new fields of research.

A minor section of the university teachers also want student performance in the examinations to be considered for assessing the efficiency of teachers. There is also insistence upon publications as the criteria for evaluating their efficiency. Publications should no doubt continue to be one of the chief criteria. But they should be graded according to quality like book reviews and publication in the renowned journals, research articles, monographs etc. By the study it can be concluded that there should not be too much stress on any one aspect while evaluating the efficiency of teachers. A valid criteria which is comprehensive including in itself all these varied dimensions should be evolved for this purpose. □

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University News

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Members attending the Special General Body Meeting of the AIU held at the India International Centre, New Delhi, under the Presidentship of Prof. G.S. Marwaha to consider legislation on education being concurrent subject

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Editor: ANJNI KUMAR

23 OCT

Focus on Santiniketan

Amlan Datta*

In 1951 Visva-Bharati was declared by Parliament to be an institution of national importance. So, indeed, it was; and so it can continue to be, provided some pre-conditions are fulfilled and certain proiorities accepted.

Visva-Bharati can still do for India what few other universities can. But if it is to give its best, it must be a university with a difference. There are certain kinds of study and activities for which Santiniketan provides a particularly benign tradition and which can grow in this university better than elsewhere. But this will not happen if we follow a policy of drift. It is necessary to carefully identify those areas of study and those efforts which need to be specially nursed and supported at Visva-Bharati, so that it can make its best contribution to India.

What are these areas? It is not much use trying to produce an exhaustive list. We cannot do all things at the same time, although we can and should do a number of things right now. So we select a few areas and try to illustrate.

Visva-Bharati can do something quite special in its department of Chinese studies. This can truly be a work of national importance. At the moment, much of our Chinese research takes place in Delhi. This has its advantages and disadvantages. Chinese study at Delhi has an almost irresistible tendency to have a political and diplomatic orientation. This is natural and, to a certain extent, even necessary. But it needs to be supplemented by Chinese study of a different kind.

Cheena Bhavana was established by Tagore as a centre where Chinese and Indian scholars would come together and try to explore and to understand by their joint efforts the history and culture of these two ancient countries. Buddhistic studies received special attention, but only because Buddhism provided a cultural bond between India and China. We need no longer be confined to that. We may turn attention to a comparative study of social history or of literature, modern as well as ancient. The main point is that we need Chinese study with a broad cultural and humanistic orientation, and for this kind of work, there can hardly be a better place than Visva-Bharati.

To be sure, a great deal of new effort and much imagination will be needed to achieve this. But Visva-Bharati provides a basis, a tradition and some old roots, which it will be wrong to ignore in planning a revival and further development of Chinese studies in India. What is needed is not simply a department of the conventional kind offering courses and degrees in Chinese study. We have to recapture something of the old spirit and build an international "guest house", a centre of Chinese studies where research fellows and visiting professors with broad cultural and academic interests can meet and exchange ideas and work side by side. This will be of much value at this juncture and this is an area where Visva-Bharati can, with some planning and public assistance, render an important service to the entire nation.

---

*Vice-Chancellor, Visva-Bharati.

A second distinctive component of Visva-Bharati is its Rabindra Bhavana. At an earlier stage, it was called Rabindra Sadana, when the main thing was the museum. We still have there a museum of national importance. But Rabindra Bhavana today rightly aspires to be something more than that. It combines the work of preservation with active research. The area of research in Rabindra Bhavana has been expanded to include Rabindranath Tagore and his age. Tagore was a symbol as well as an interpreter of the Indian renaissance. He represented a broad spirit of synthesis in more senses than one, a synthesis between man and nature, between folk culture and the culture of the city, between science and humanity. It is necessary to bear in mind the practical relevance of that spirit in solving problems of the day.

Rabindra Bhavana seeks not merely to perpetuate an old memory, but to make that memory a living guide for the future. There are a number of educational, social and cultural experiments which Tagore either attempted himself or inspired in others. It will be useful to study the history of these experiments and the obstacles they encountered, so we can both draw lessons from them and understand better the history of the times of which they were a part.

Comparative study of Indian literatures is another area where Rabindra Bhavana can expand its research activities. In India, students of literature have some idea about literary developments in the leading European languages. But we know very little about the literature being written in sister Indian languages. This is unfortunate. Literature is supposed to mirror life. People in different parts of India have, if not the same, at least a similar social experience. It should be interesting to learn more about how this experience is expressed in literature through different Indian languages. Literature or sahitya is supposed to bring people together through bonds of sympathy. Comparative Indian literature, as a social area of study, may, in addition to its intrinsic value, strengthen the basis of a composite Indian consciousness. Again, Tagore's Visva-Bharati offers a more hospitable and even inspiring tradition for such a development than what would be commonly available elsewhere.

Sriniketan, which started as an Institute for Rural Reconstruction, is a third distinctive component of Visva-Bharati. Palli Charcha Kendra illustrates the dilemma of the academic programme of Sriniketan as well as the research objectives which might be appropriate to that milieu. At one stage, there was an idea that Palli Charcha Kendra should evolve towards a teaching department. This it has failed to do. It has still the potentiality to grow into a special kind of rural research centre.

It is now increasingly clear that India along with other Third World countries, needs a line of industrialization and a social development policy quite different from the old models derived from the past. Tagore and Gandhi come back to us with a new relevance, particularly on questions of reconstruction of rural society. However, there are no blueprints to guide us. The best that the Third World countries can do is to compare notes and theories tentatively and learn from experience as they go along. This ought to provide the historical background for the kind of research that will be appropriate for Palli Charcha Kendra. Palli Charcha Kendra can become a thing of significance not as a teaching department, but as a basic research institute grounded in the social sciences, in the service of a new conception of integrated rural development, such as Sriniketan has always ideally sponsored.

The few areas of study, identified earlier as requiring special support, already point towards one simple conclusion. In Visva-Bharati, as it has developed over the last few decades, there has been an excessive and undue preoccupation with conventional courses leading to Bachelor's and Master's degrees.

It is too late now to discard these courses. But it is time to redress the balance by strengthening special kinds of research of which some examples have already been given. Research along these selective lines will often need the cooperation or joint efforts of scholars drawn from diverse disciplines and different regions. For this purpose, the university needs a considerably augmented provision for research centres (rather than conventional departments), research fellowships (rather than teaching posts), and community halls, conference rooms and accommodation for Visiting Fellows and Visiting Professors.

It is doubtful if this remodelling of the university is really possible with the UGC as the principal funding agency. Supplementary funds from the Ministry of Education may be essential. The matter needs careful consideration. In the final analysis, resources can only be misdirected if the necessary remodelling of Visva-Bharati is thwarted or postponed. The interests of the nation will be served best by a policy of specialized and selective support for this university. Only thus can it fulfil its true role as an institution of national importance

One final example of what this university ought to attempt will help put the problems of Visva-Bharati in proper perspective. It will be in keeping with tradition to try and develop an active and dynamic drama unit as part of this university. To begin with teams can be trained for presenting selected plays of Tagore, to be staged both at Santiniketan and in other parts of India. This will be one way of carrying the message of Tagore all over the country cutting across barriers of language.

Although we begin with Tagore, we need not, however, stop at that point. The Visva-Bharati drama unit is likely to stagnate if it stops there. It may be a good idea to go further and stage significant plays

(*Continued on page 480*)

Participatory Training for the Teachers

S. C. Bhatia*

The study of Education of the Handicapped is an area which requires the basic understanding of several disciplines. The classroom teacher is often called upon to deal with a situation wherein the children bring with them specific disability/disabilities, a set of psychological attributes which have been shaped by the family and the peer group, a set of social behaviours (often characterized by insularity, isolation, introversion and negative self-concepts) and the large measure of societal pity or sympathy. The learner thus faces physiological, psychological and sociological impediments to his capacity to learn.

Literature or unidisciplinary expertise does not help the classroom teacher much since the whole thing is substantially reliant on advances in medical sciences. The substantial orientation of our medical sciences has largely been in the area of curative treatment; a great deal of educational practices (pedagogy) in the education of the handicapped have relied upon aids and appliances which seek to minimise the effect of the handicap. This orientation has given wide currency to such terms as "handicapped", "disability" or "loss"; a change in this orientation would call for educational attention to the remaining heightened abilities.

The social perception on the handicapped child has also been accordingly influenced. The first thought that invariably comes to parents' minds, and rightly so, is to do their best to get the disability cured or corrected. The medical functionaries are seen as angels of hope; parents shuttle from hospital to hospital to see their child able-bodied. Often, considerable amount of time is lost in this process.

This in turn creates grave difficulties in the process of training and rehabilitation. Parents spend so much time and energy in medical treatment that the whole effort often proves to be mentally exhausing. In this state of grave concern accompanied by confusion, parents often fail to realize the importance of early education and training as a vital force in the rehabilitation of the child. The handicapped child is thus a late entrant in the school and a slowlearner in an institutional framework. The disadvantage of this late entry is often cumulative causing wide differences in their physical and mental ages.

Against such a complexity of the societal situation, the teacher dealing with the handicapped children is called upon to discharge multiple roles: a counsellor for the parents, a teacher for the learner, an official functionary for the State/local administration, a chain agent in the task of handicapped welfare and some sort of a research scholar engaged in documenting his experiences and the various problems that he encounters in educating the handicapped child. More than all these, he is some one who has social and economic obligations to his family and the society at large. This problem becomes for more complex for teachers who are participating in the scheme of Integrated Education of the Handicapped. Based on their experiences with children with no disability, the teachers now have to acquire new competence to deal with the handicapped children.

It is in the context of the above points and in recognition of the need for continued updating of teachers' knowledge regarding theory and practice of teaching handicapped children that the provision for Refresher/orientation courses assumes utmost importance. The following three categories of teachers' would generally be expected to participate in such courses:

(i) teachers teaching in the special schools for the deaf;

(ii) teachers teaching the deaf under the scheme of the Integrated Education of the Deaf; and

(iii) teachers not teaching the deaf under any of the above two categories at the moment, though they may be expected to take up such duties in the near future.

The objectives for the Refresher/orientation course for the teachers of the deaf are:

(i) to provide an opportunity to teachers for the Deaf to refresh their knowledge and skills gained during teacher training with a view to bringing an interdisciplinary focus on the subject;

(ii) to acquaint the teachers with latest developments in the Education of the Deaf;

(iii) to initiate teachers into the nature of problems involved and tasks likely to be undertaken in the integrated education of the Deaf;

(iv) to promote interaction among teachers to analyse their day-to-day problems and the manner in which these curb they urge to experiment;

(v) to enable teachers to perceive their role beyond the school classroom to their meaningful participation in the community at large; and

(vi) to enable the teacher to adopt self-directed learning for his own professional growth.

With the diverse background of the teachers both in terms of the nature of their professional duties and their places of residence and work, they would themselves go through an integrative experience. Each teacher was beginning to evolve a broader view of his own role wherein the commitment to the growth of the learner remained the central objective. While the teachers from the Special Schools were looking at the wider mainstream of the ordinary school, they were at the same time beginning to fear a loss in the importance of the special schools. Even though such fears were unfounded and often based on a wrong understanding of "Integration" as an educational strategy, they were opening up and beginning to talk.

---

* *University of Delhi.*

The Refresher Course thus offered an opportunity in participatory training wherein the participants gradually found themselves involved in a process of discovery through the technique of self-expression and interaction with others. They were in this process sharing a lot of field-level classroom-based perceptions which are otherwise often not available.

The participants' profile prepared by the Education for the Deaf Project in the University of Delhi is in itself quite meaningful.

Profile of teachers participating in the first refresher course for the teachers of deaf children

1. *Number of School teachers* :		14
2. *Place of work* :	Delhi	9
	Dehradun	2
	Jullundur	1
	Jaipur	1
	Ludhiana	1
3. *Educational qualifications* :	Up to M.A.	7
	up to B.A./B.Sc.	5
	up to Higher Sec.	1
	up to Matric	1
4. *Professional qualifications* :	C.T.D. trained	7
	J.B.T. trained	2
	I.T.I. trained/untrained	3
	Dress designing	1
5. *Subject Specialisation* :	**Science**	
	up to B.Sc.	2
	up to Hr. Sec.	1
	up to Matric	1
	Humanities	
M.A.	Sociology	2
	Economics	1
	Political Science	2
	Hindi	2
B.A.		4
6. *Classes being taught* :	Pre-primary	—
	Primary	3
	Middle	3
	Secondary	2
	Vocational classes	2
	Only normal classes at the primary unit	2
7. *Untrained teachers background* :	M.A.	1
	B.A./B.Sc.	—
	Hr. Sec.	—
	Matric	1
8. *Designation/ Post held* :	Instructor	2
	Astt. Master/Second Master	7
	Teacher	5
9. *Age range* :	21-25 years	1
	26-30 years	4
	31-35 years	4
	36-40 years	1
	41-45 years	3
10. *Type of children being taught* :	Deaf in separate schools	9
	Deaf in Integrated schools	1
	Deaf in vocational centres	2
	Only normal children	2
11. *Continuing Education of Teachers* :	**Self-directed**	
	Informal	14
	Planned	—
	Refresher/orientation	—
12. *Frequency of contact with parents* :	Every week	—
	Every fortnight	—
	Every month	—
	occasionally	14
13. *Parents/community's concern about deaf children as perceived by the teachers* :	Total	—
	Partial	—
	Nominal	14
14. *Books/Journals, Read/Subscribed by the participants* :	Mook Dhwani	6
	Mook Jyoti	2
	Volta Review	2
	Badhir Jagriti	1
15. *Knowledge of voluntary organisation working for deaf* :	AIFD	6
16. *Expectations from the refresher course* :	To interact with fellow teachers	2
	To gain new/additional information and skills in various areas of education for the deaf	11
	To initiate and complete individual and group activities to prepare some teaching aids/learning materials	1
	To integrate education of the deaf with normal children	2
	To learn to prepare learning material and teaching aids	2
17. *Participants willingness to act as resource persons* :	Through oral presentation	—
	Through a written paper	1
	Not willing	13
18. *Participants attitude towards integrated education of the handicapped* :	Positive	—
	Open to consideration	7
	Subject to solution of some anticipated problems	4
19. *Awareness regarding deficiencies in syllabii, teaching methods, teaching materials and administrative constraints*		14

20. *Participants suggestions* : 1. Need to provide individual and group hearing aids and the need to ensure their regular use and maintenance;

2. Need to strengthen Audio-visual units in such schools;
3. Need to restructure course context in terms of its relevance to learner growth and speed of learning;
4. Need to consider the question of holding the separate examinations;
5. Need to provide vocational skills alongside general education in schools for deaf;
6. Need to organise parents' education programme with the help of school;
7. Need to organise orientation programmes for Social Welfare officers over viewing the educational programme for the handicapped.
8. Need to organise seminar/workshops for school Principals;
9. Need to involve media people in a state of interaction with school teachers and others interested in this field; and
10. Need to upgrade the school teachers in terms of granting them the facilities to try out their ideas, approaches and strategies in teaching.

While the main consideration in curriculum planning for the course related to the recognition of the interdisciplinary nature of the problems involved in the Education of the Deaf, other considerations were substantially in evidence in such aspects as one's perception of social attitudes, magnitude of the incidence of hearing loss in the country, governmental programmes in the area and their implementation, the extent of public awareness regarding the conditions of the Handicapped, and the determination of the priorities in each disability.

The most distressing situation lay in the excessive emphasis on curative approach to tackling the problem of disability. Teachers as a group apparently do not seem to have achieved much in creating awareness regarding the importance of early detection and rehabilitation through education and training. A balance thus had to be struck between the curative emphasis of the medical practitioner and the rehabilitating role of teachers and counsellors.

The curriculum for the course was thus prepared in view of the above stated criteria. The course content is quite self-explanatory.

The resource persons/discussants came from much institutions as the All India Institute of Medical Sciences, the Lady Hardinge Medical College, the National Council of Educational Research and Training, the Ministry of Social Welfare, the UNICEF, the British Council, the All India Federation of the Deaf, the Lady Noyce School, the Delhi College of Engineering, the Departments of Physics, Linguistics, Education, Psychology, Anthropology, Adult and Continuing Education and the Lady Irwin College.

While each resource person/discussant brought to the participants a rich fund of knowledge from within his own field of specialization as relevant to the Education of the Deaf, the participants sought to relate much of it to the manner in which their day-to-day problems could be solved. It has been a challenge for the resource persons/discussants to achieve a balance between their "theory" and the teachers' "practice". In this context, the refresher course has been an educational experience for the resource persons/discussants as well. This process should result in a better adjustment between theory and practice in the subsequent courses.

The participants have by and large positively responded to the concept of such retraining. They have in fact asked for periodic follow-up sessions consisting of discussion, practice-teaching and visits to hospitals, case conference sessions and counselling centres. The demand for a referal (write-in) service for parents and teachers has also been strongly voiced. The teacher who had found himself lost in the maize of administrative rules has exposed himself to the refreshing world of introspection and expression through participatory training.

The Education for the Deaf project at the University of Delhi has gained many insights which would need to be programmed in terms of the following activities:

1. follow-up (on-week long) programmes for those participating in the Refresher Courses;
2. meetings with school administrators and social welfare administrators to orient administrative machinery to encouraging and sustaining educational innovation;
3. to second school teachers to research studies in the Education of the Deaf being undertaken by Universities and other organisations with a view to bringing in their practical experience in the process of conceptual research;
4. to involve teachers in the various uses of modern and traditional media for promoting parental awareness regarding early detection, prevention and rehabilitation of the disability;
5. to initiate empirical studies on social attitudes and the social perceptions on educational needs assessment of the handicapped; and
6. to promote documentation of literature in the area of the Education of the Deaf. ☐

Who Should Run the Universities ?

Views expressed by members and ex-members of the AIU regarding management of universities

Prof. K.S. Narang, former Vice-Chancellor, Punjabi University : The suitability of academicians or administrators as Vice-Chancellors has been frequently discussed in recent years. Retired Judges, former diplomats and even active politicians have sometimes been drafted to the post.

Fifty years ago the office of Vice-Chancellor was a most exalted one. Men known for their integrity and ability or those who had earned a measure of fame either nationally or internationally were offered the job of Vice-Chancellor. Invariably, the Government pursued the candidate. Now the candidates pursue the Government in a bid to manoeuvre their way into the job. One of the major reasons for the fall in academic standards of our universities today is the change which has occurred in the mode of appointing Vice-Chancellors.

In the first few decades after Independence the inroads made by the Government in university affairs were covert. With the passage of time, however, things came out in the open with various political parties, making a determined bid to capture these "citadels of youth." As a result, active cells of the various political parties sprang up within the student and teaching communities. These developments had a generally adverse effect on the stability of the university and disrupted the peace at the campus.

The Governments of Andhra Pradesh, Kerala and Karnataka sought to exercise direct control over the universities by introducing legislation to this effect. The Mysore Government University Bill, for instance, went to the extent of proposing the appointment of the incumbent Education Minister as Pro-Chancellor with powers to appoint the Vice-Chancellor and to generally intervene in the administration of the university.

Closer home we have Panjab University in Chandigarh which has suffered less than other universities from political interference.

There are two main reasons for this. First, the leavers of power were shifted to the Centre when political ferment was at its highest point in the area. Secondly, in the two decades of its existence it has established a healthy tradition of having an academician as Vice-Chancellor.

It is high time the political parties ceased to meddle in the affairs of our universities in the large national interest. □

Prof. B. S. Samundri, former Vice-Chancellor, Guru Nanak Dev University : If we were clear about our educational objectives, the question of appointing I.A.S. officers as Vice-Chancellors of our universities would simply not arise. Only the narrow goals of administration are served by such appointments.

Such appointments are designed to make students and teachers more submissive to authority.

The real goal of education is to instil the ideals of service and scholarship into the student community. The teacher is the pivot of such a system. To make him subservient to authority would be to negate the real goal of education.

I am clearly and firmly of the opinion that not only Vice-Chancellors but all heads of institutions of learning and research should be drawn from within the institutions.

Problems of discipline will always arise in institutions of higher learning where thousands of students and teachers meet. There will always be differences of opinion. Every difference of opinion cannot however, be equated with indicsipline. Indeed, non-conformism should be positively encouraged in our seats of higher education. The appointment of I.A.S. Vice-Chancellors would negate this aim as well.

Where the Vice-Chancellor is a father figure to his colleagues and students, most disputes are likely to be settled across the table in a cordial atmosphere. Though academicians are not infallible, they are more likely to provide the right leadership to young students than men from outside the "family circle."

The dissemination of knowledge and the extension of knowledge are the main aims of academicians. The objective of I. A. S. Vice-Chancellors would be primarily to enforce a sterile and obsolete atmosphere of discipline on the campus. To the I. A. S. this would be just another posting among many others.

I have had a long and, if I may be permitted to say, a very happy experience as a teacher, Principal and Vice-Chancellor. My feeling is that the successful Principal of a big college is better equipped to be the Vice-Chancellor of a university than a person with more limited academic experience. Vice-Chancellors must be selected with care and without bias and once appointed they must be allowed to function within the framework provided by the charter of the university without pressures from extraneous quarters. □

Dr P.S. Lamba, Vice-Chancellor, Haryana Agricultural University : The fight for supremacy between bureaucrats and technocrats—not new in this country—has of late become quite intense.

The popular concept of administration is the maintenance of law and order, the application of rules and regulations and the execution of Government policies and programmes. The type of training given to an administrative officer and the nature of his experience do not equip him to handle jobs other than those which are purely administrative.

I have a Ph. D. in agriculture, which qualifies me as a technocrat but I have spent most of the 40 years of my career in administration. In my opinion bureaucrats are claiming precedence over technocrats on unwarranted premises.

During the last few years I. A. S. officers have been appointed to posts such as Director of Agriculture and Vice-Chancellor. The day may come when these bureaucrats are appointed to positions such as Director of Health Services, Chief Engineer, Chief Justice of a High Court and even Chiefs of the Army, the Navy and the Air Force.

It is inexplicable why a developing country such as India chooses to relegate its scientists, doctors and engineers to subordinate positions while developed nations such as the U. S. S. R. and the U. S. A. place them in the most crucial position. If administrators can be expected to handle all sorts of jobs, including those of a technical and scientific nature, there is no reason why highly trained technocrats should not be considered competent to handle the same jobs, including that of Secretary in various Government departments.

It might be suitable to place a bureaucrat at the helm of affairs when an institution is being built. A rapport with the bureaucrats in other departments will enable him to get the requisite finances and other Government aid necessary to complete the project. Thereafter, when the institution becomes operational, only a technocrat should be allowed to head the administration.

The Government often appoints bureaucrats who have retired or who are about to retire as heads of universities and other institutions. This is not a healthy practice. Universities are not rest camps. Students and intellectuals cannot be dealt with in the same way as files.

Finally, I would suggest that technocrats should be given suitable administrative training at Management institutions before being put in charge of various institutions. A fully trained technocrat can give a good account of himself provided he gets the right amount of cooperation from bureaucrats and politicians. A country like India, which is still at the stage of transformation, needs more technocrats than bureaucrats. □

Dr Amrik Singh Chema, former Vice-Chancellor, Punjab Agricultural University : There is a myth in academic circles that Vice-Chancellorship is the consummation of a successful academic career. There have been occasions when scholars have not enhanced their reputation by working as Vice-Chancellors. Likewise, not all the administrators who have held the office of Vice-Chancellor have been successful.

Therefore, the controversy whether a Vice-Chancellor should be a bureaucrat or an educationist is not very relevant. Circumstances have changed radically in the recent past. Earlier, there were not so many problems plaguing the universities. There were no cliques and no controversies. The Vice-chancellorship was a sinecure. The universities have now become complex organisations. A Vice-Chancellor has to face problems relating to discipline among the faculty, non-teaching employees and students. Since this is the age of associations and unions, all these categories of people are well organised under vocal spokesmen.

The Vice-Chancellors are further hampered by lack of financial autonomy. They are forced to run after the Government and other funding agencies for the release of grants for various schemes.

Vice-Chancellorship is, therefore, a full-time job. Problems can arise at any time and often demand immediate solution. Whether a Vice-Chancellor should be an I. A. S. officer or an academician is not of much importance. What is more important is whether that person possesses the qualities necessary to shoulder the burden of this office. The incumbent should be well versed in human management techniques. He should be responsive to the genuine aspirations of the employees and students. He should possess leadership qualities and have sufficient administrative experience to be able to grapple with day-to-day problems of the university. He should be between 50 and 65 years of age so as to command the respect of the employees and students.

Persons endowed with enormous patience and with at least 20 to 25 years' administrative experience should be considered for the job—whether academicians or bureaucrats. The appointment should be made through a selection committee which is free from political and goverenmental interference. A politician should never be appointed a Vice-Chancellor. Furthermore, a member of the faculty with long-standing links with the same institution should generally not be appointed its Vice-Chancellor as he would be open to criticism of bias for or against other members of the faculty. An outstanding academician of one university can, however, be appointed the Vice-Chancellor of another university. □

Dr (Mrs.) I. K. Sandhu, former Vice-Chancellor, Punjabi University: Our education system is a legacy of the British. The pattern evolved by them was primarily designed to serve their imperial interests in this country by establishing an educated native elite.

There were only four universities in India in 1900. By 1947 the number had gone up to 20. It rose further to 64 by 1966, and as of January, 1980, there were, 108 universities in the countrye This proliferation has created many problems, not the least of which is the politicisation of the universities, leading to "campus unrest".

The unrest among students is a symptom of a deeper malaise. It indicates that all is not well with the education system and that the calibre of university administrators is poor.

The Kothari Commission has drawn attention to the need for universities to encourage individuality, variety and dissent within a climate of tolerance. They should produce neither "organisation men" nor "ivory tower" intellectuals. A university has to maintain the delicate balance between commitment and detachment—a commitment to action and a detachment of thought. It can neither identify itself with the existing environment nor must it yield to every kind of change and every passing pressure.

To fit in with these objectives it is imperative that the Vice-Chancellors of universities should be seasoned and experienced academicians and not bureaucrats or technocrats. Only an academician can encourage scholastic endeavour while insulating the university from the influence of unscrupulous political opportunists, sycophants and rabid communalists. □

[*Courtesy* : *The Tribune*]

Focus on Santiniketan

(*Continued from page 474*)

written in other Indian languages from time to time. Thus, the drama unit will in its own way support and strengthen the spirit behind the proposed Rabindra Bhavana studies in comparative Indian literature.

Nor is this all. A dynamic and innovative drama unit will hopefully infuse new life into Visva-Bharati's Sangit Bhavana and Kala Bhavana. This is an urgent need. The main point can be simply stated and illustrated. There are some renowned artists in our Sangit Bhavana. But are they producing pupils who can carry the tradition forward in a creative way? Or, is the Bhavana crawling towards stagnation and decay? A dynamic drama unit may produce that challenge to which the schools of music and fine arts at Santiniketan will feel impelled to respond creatively.

Visva-Bharati needs to be saved from self-proclaimed devotees of Tagore, who want to stop change and restore things, as far as possible, to their original form. This is demanded subject to some important qualifications. In Santiniketan at the beginning of this century, an austere style of life, cheerfully accepted, was the rule. Now it is no longer the same. The old idea of dignity of labour, when students as well as teachers used to sweep the floors, has disappeared and a new taste for material comforts has taken its place. People in the service of Tagore's university today want selection grades and enhanced allowances, more and more heavily subsidized housing and medical services, better roads and civic amenities, and other comforts and conveniences of a small and beautiful city life.

If the demands about additional allowances are not satisfied, people are inclined to withdraw cooperation and upset the old tradition entirely. That is deplorable yet understandable. So perhaps is the intermittent cry that the old tradition should not be disturbed.

There are several flaws in the argument about keeping the old tradition intact. Only one needs to be specially pointed out here. Tagore's was a living tradition. We cannot attempt to freeze it without debasing and devitalizing it. It will be difficult to justify maintaining an institution and a community at Santiniketan at an increasing expense from the public exchequer for no better purpose than to preside over the slow disintegration of an arrested tradition. What is necessary is to combine a certain appreciation of the old tradition with a clear perception of the need for growth and development. This cannot be achieved without a commitment to values rather than fixed forms and a practical sense of priorities in planning the development of Visva-Bharati in the next few years. While the commitment to values and a readiness to make some sacrifice if necessary, to uphold that commitment is necessary at all levels, it is at the highest levels of policy-making that clarity of thought on priorities must appear first. □

[*Courtesy* : *The Statesman*]

CAMPUS NEWS

Jammu organises seminar of postgraduate students on Master's Degree programmes

The College Development Council of the University of Jammu organised a seminar with students on "Master's Degree Programmes : Key Issues and Reforms" at the New Campus, Jammu. 32 students from the Postgraduate Departments of the University were invited to participate in the Seminar. Heads of University Departments or teachers nominated by them were also invited. Resource persons from the University Grants Commission, Association of Indian Universities, National Council of Educational Research and Training and the National Institute of Educational Planning and Administration were also invited to guide the deliberations of the Seminar. The purpose of the Seminar was to discuss with the students the present status, relevance and standards of postgraduate education and elicit their view-points regarding innovations and reforms which could be introduced, within the existing constraints, in the Master's degree academic programmes to make them meaningful and relevant to our needs and aspirations. As the students are the most important constituents of the teaching-learning process, no reform in the educational system can be implemented successfully unless the students perceive the need for change, relate their instructional objectives with the changing requirements of society and participate with enthusiasm in the earnest endeavour to enrich the academic setting. The seminar was aimed at realising this objective and seeking their participation and commitment in the innovative processes and determination of perspectives in the development of higher education.

The following recommendations were made at the seminar :

(1) Semester based education linked with credits and unit courses should be continued and the spirit of flexibility, interdisciplinary approach and practical orientation to courses related to our needs should be incorporated therein. Freedom should be provided to the students in chosing the courses to make up the required number of credits so as to introduce perfect flexibility in the system.

(2) The courses should be updated and modernised. Applied courses having utility in relation to our needs should be added in the curricula.

(3) The syllabi should be made comprehensive by clearly stating objectives, learning experiences and evaluation procedures. The objectives should be more utilitarian. The courses should be designed keeping in view the time available in a semester.

(4) There should be continuous assessment of a comprehensive nature inclusive of assessment of the cognitive as well as the non-cognitive attainments to be shown separately in the result transcript.

(5) Efforts should be made to evolve reliable and valid tools for all-round internal assessment like rating scales, check lists, assignments, objective short-answer and essay type tests, term-papers, and viva-vice. The tools likely to be used subjectively should have lesser proportion in assessment. The internal assessment should be open and grievance committees with the representation of the students should be set up for redressal of grievances in all departments.

(6) Dynamic Methodology of teaching should be evolved by the teachers by introducing discussions, meaningful tutorials, seminars and library assignments. in their instructional strategies.

(7) The evaluation technique for external assessmnt should be improved by inclusion of short answer and objective type of tests in a large measure.

(8) The library facilities should be increased and their availability facilitated. Text Books of Departments located in old Campus should be transferred from the Central Library for effective use in the Departments concerned so long as these Departments do not shift to the New Campus.

(9) More study centres should be set up in the city of Jammu and adequate number of text books should be stocked in these centres.

(10) The essence of the semester system with the concomitant reforms lay in uninterrupted sessional work and every effort should be made to increase the working session in each semester to 90-100 days (excluding the examination period).

(11) Orientation courses should be held for inculcating awareness of the philosophy, procedures and implications of the semester system and other innovations among the teachers and the students.

(12) Intake of students in each department should be restricted keeping in view the facilities by way of staff, accommodation and equipment available.

(13) Minimum percentages of scores in the qualifying examinations should be fixed for admission to postgraduate courses.

(14) Proper teacher-taught ratio should be maintained in each department.

(15) An Examination Reforms Implementation Committee should be set up in the University to take care of the administrative and academic problems and ensure smooth implementation of the semester system and related reforms.

Kashmir to strengthen its proctorial system

The University of Kashmir proposes to reorganise its proctorial system for maintenance of discipline and other campus problems. It will consist of faculty members, students and well trained peace-making force. The objectives of the peace-keeping force would be : (i) to defuse and contain situations and to prevent their escalation. and (ii) to maintain close liaison and co-ordination between the University and the district authorities.

The peace-keeping force of the University would act squarely under the orders and control of the University authorities. The University authorities will have full discretion in deciding how this force should be deployed or used in the maintenance of order. Broadly, the type of duties to be performed by them may be as given below:

(a) Watch and ward, protection of Univerity property;
(b) Prevent entry of undesirable persons on University Campuses;
(c) To eradicate Eve-teasting, ragging and gambling, drinking, use of intoxicating drugs on the Campus;
(d) Stengthen invigilation during examinations and prevent the use of unfair means in the examination;
(e) Gheroas, demonstrations and intimidation of University authorities;
(f) Disturbance of teaching, examinations and other academic activities.
(g) Bandobast during large functions such as Convocation, VIP visits to the Campus, Sports events, etc.

The above duties would be undertaken by the proposed force as officials of the University and they would be afforded the legal protection given to public servants.

The peace-keeping force would be known as University Guards and their uniforms will be prescribed by the University authorities. They will, however, be unarmed and carry only battons/lathis. To start with the strength of the University Guards for the University may be as follows:—Chief Security Officer-1, Asstt. Chief Security Officer-1, Security Supervisors-4, Head Guards-10, Guards-100.

For purposes of pay these ranks may be equated with the equivalent ranks in the Police as follows:

Guards: Constables;
Head Guards : Head Constables;
Security Supervisors : Sub. Inspectors; Asstt. Chief Security Officer : Inspector; Chief Security Officer : Deputy Superintendent Police

The exiting watch and ward staff may be absorbed/adjusted in the University Guards.

The Assistant Inspector General of Police of the State has been requested to work out the financial implications for the proposed Security organisation for the University along with the cost of Barracks to be constructed to accommodate the Guard-men. It has also been decided that a whole-time and well trained peace-keeping force should be set up. Instead of making recruitment from open market it would be desirable to obtain personnel from the Police Department on deputation basis. The peace keeping force may be called the University Guards. Notwithstanding the fact that the strength of the proposed force may be 100, it would be open to the discreation of the Vice-Chancellor to requisition the number of personnel from the Police Department as per the actual requirements within the ceiling proposed in the scheme. The State Govt. has agreed to provide funds for this purpose.

National policy on medical education favoured

Inaugurating the first all-India convention of junior doctors. Dr. A. K. N. Sinha, President of the World Medical Association, said in Bombay that during the last 30 years many medical colleges had sprung up without the creation of job opportunities for the young doctors. He observed that lack of national policy on medical education has driven many young doctors to the street. He regretted that the government always complained that there were not sufficient number of doctors to run the health services in the rural areas. If the government offered decent emoluments and other facilities, many doctors would be willing to serve in the rural areas with dedication. Dr. Sinha called for revamping the national health education policy, which should be based on the needs of the country.

Change in educational system sought

Presiding over a State-level seminar on "National Integration through Education" organised by the Punjab School Education Board, the Punjab Chief Minister, Mr. Darbara Singh, called for a change in the present educational system to check regionalism, parochialism and communalism and foster national unity. He pointed out that there were several shortcomings in the educational system. Not enough emphasis was being laid on national integration, the common hopes and aspirations of the people and the common cultural heritage. Teachers, he felt, could play an important role in promoting national integration. Students should be taught to respect every language, religion and culture of the country.

Mr. D. D. Thakur, Finance Minister of Jammu and Kashmir, said that India was beset with many problems but the most fundamental problem was of national integration. The forces of casteism, communalism and regionalism were gaining strength and many pessimists felt that the country was heading for distintegration. He said that there were certain aberrations which, if not corrected immediately, could lead to complications.

Dr. M. S. Randhawa former Chief Commissioner of Chandigarh, lauded the objective of the seminar and said that similar seminars should be held at the district-level as well. Communal-amity and national integration were the need of the hour, he emphasised.

Master Plan for Calcutta University campus

In preparation for the first phase of construction of the new building of Calcutta University a comprehensive master plan is being finalized to enable the university to build a single integrated campus. According to the present estimate, the plan in several phases will cost about Rs. 30 crores. Dr. R. K. Poddar, Vice-Chancellor said in Calcutta that after the new Senate was formed he would appeal to its members to set up a special cell to implement the project. Apart from the Centre and the State Government, the services of eminent personalities and different chambers of commerce and industries would have to be sought to raise funds. He said that the need for a modern integrated campus had become essential to make the university function in an effective way. So far, the university had grown up in a haphazard way because it had to depend in the past mainly on the generosity of private donors, who had made their land and building available to the university located at different places.

Spread over about 20 acres in seven premises in different parts of the city, from Baranagar to Ballygunge, the present set-up, Dr. Poddar said, often created administrative and academic problems. It had become difficult to maintain contact with 66 post-graduate departments and coordinate their activities. As a result some departments and faculties had to work in isolation. He said this was against the present trend all over the world to bring together diverse intellectuals into one campus and encourage inter-disciplinary research and teaching, Delhi, Madras, Jawaharlal Nehru, Aligarh, Banaras and Osmania Universities were located in one complex.

The Ghani Committee appointed by the University Grants Commission which examined the structural pattern of the university had recommended that the entire university be put in a single campus covering at least 200 acres and that a sum of Rs. 27.5 crores be granted for implementing the project. Dr. Poddar said that in the proposed campus it would be possible to bring all the faculties at one place and offer better facilities to students and staff. The Central Library, a number of auditoria, exhibition halls, canteens and a sports complex would be located at Alipore. This would definitely ensure better coordination and more inter-disciplinary contacts than at present.

Dayalbagh Varsity starts functioning

Dayalbagh University has started functioning from the current session and the first meeting of the primary body of the university was held in Agra recently. The meeting was also attended by a representative of the Education Department of the Union Government. An 'Institute Organisation Committee' was set up earlier which was supervising the functioning of the three colleges (Women's Training College, Dayalbagh, REI College, Dayalbagh and Engineering College, Dayalbagh which were affiliated to Agra University) till the meeting of the primary body. The primary body approved the working of organisation committee. The primary body unanimously elected Justice G.D. Saigal, a retired Judge of Allahabad High Court, as president of the institute and authorised him to take suitable steps for running the different institutions till the formation of the different faculties. A governing body of the institute was also formed by the primary body.

Private college staff to get salaries through banks

The Andhra Pradesh Government has formulated a revised scheme for payment of salaries through banks to the teaching and non-teaching staff working under private aided managements. This announcement was made by the Chief Minister, Mr. T. Anjiah recently. The revised scheme would be applicable to the teaching and non-teaching staff working in Junior Colleges, Degree Colleges, Oriental Colleges and Colleges of Education under private aided managements and whose salaries and allowances were paid by the Government in the shape of grants-in-aid. The revised scheme has been formulated in pursuance of the understanding reached at a tripartite meeting presided by Mr. B. Venkatram Reddy, Minister for Education, and attended by the representatives of the managements, teachers and the Education Department. All the employees (teaching and non-teaching) of the colleges, who come under the scheme, are required to open Savings/Current Account in a nationalised/commercial/co-operative bank. The accounts should be opened only in one bank and in the same branch of that bank in which the college aided staff salaries account was opened for operating the scheme.

Tamil Nadu scheme to improve college faculties

The Faculty Improvement Programme launched by the Tamil Nadu Government in 1979-80 is likely to come to a close from this academic year. The programme was specifically drawn up to benefit college teachers considered surplus on account of the shedding of the pre-university course in June 1979. In fact, it was the senior teachers who were deputed for higher studies and research leading to the M. Phil degree for a period of one year. They were given full pay and allowances during the period. Assistant Professors drawn from all faculties including the languages were included in the scheme in the initial years. In 1980-81, the scheme covered predominantly language teachers (English and Tamil mostly) and about 100 of them were thus deputed. This was because teachers in subjects like physics, mathematics, chemistry and economics were not by then found to be surplus.

The Directorate of Collegiate Education has already got the approval of the State Government to go ahead with the scheme this year also. It is expected that a few teachers of English and Tamil may be deputed under the scheme.

All India institute of animal cell culture and differentiation at Poona

The Department of Zoology, University of Poona, Pune-7, will be organizing an All India Institute on "Animal Cell Culture and Differentiation", sponsored by the UGC and DST, from 20th November to 15th December 1981. The teaching programme of the institute include lectures and laboratory experiments on cell-tissue-culture techniques and their applications as well as aspects of cell structure and function. The staff of the institute includes eminent scientists in the field from many Indian laboratories.

Research workers from Universities and other National Laboratories in India desirous of participating in the institute should contact Prof. S.P. Modak, Department of Zoology, University of Poona, Pune-411007, along with copies of their bio data, on or before 26th September, 1981. Participants will be paid TA and DA at rates admissible by the University.

Technological Varsity in Konkan proposed

A technological university is proposed to be set up in Konkan soon. This announcement was made by Mr. A.R. Antulay, Chief Minister of Maharashtra, in Bombay recently. The new university would include tropical subjects, like conservation of energy, coal, gasification, etc.

The setting up of the University would cost about Rs. 18 crores of which 90 per cent would be borne by the Centre and the rest by the State Government. Some seats would be reserved for students hailing from other States.

Mr. Antulay said the Government already had discussions with the Union Education Minister, and the Chairman of the University Grants Commission, Mrs. Madhuri Shah in this regard and hoped theUGC would clear the proposal. Besides the technological University, Konkan would also have a medical college.

Degree course in printing suggested

Dr. M.M. Chakravarty, Vice-Chancellor of Jadavpur University, has urged the State Government to consider the proposal of introducing a Degree Course in the Regional Institute of Printing Technology. He was speaking at the inaugural function of the Silver Jubilee celebrations of the institute. State PWD Minister Mr. Jatin Chakravarty promised all help for the development of the institute. Mr. Sambhu Ghosh, Minister for Higher Education, complimented the authorities on the all round development of the institute.

Seminar on adult education held at Bombay

Mr. B.J. Khatal, State Minister for Food and Civil Supplies of Maharashtra inaugurated a three-day seminar on "Adult education component in integrated rural development, and its follow-up programmes" in Bombay recently. Thirty-three delegates from all over the country attended the conference, which was organised by the Indian Adult Education Association, New Delhi, in collaboration with the Bombay city social education committee. The seminar discussed the relevance of adult or non-formal education in the transfer of science and appropriate technology to the rural poor and the preparation of a plan of such education for small farmers, artisans and landless labour. It also discussed the preparation of training models in adult education methods for scientists and technologists so as to help them transfer science and technology to the rural areas and the role of educational institutions in this programme.

Mr. M. J. Ghadekar, director of the seminar, while explaining the purpose of the seminar referred to the Tanzanian President, Dr. Julius Nyerere's theme of "Education for self-reliance", to make education part of the ongoing development of a community.

Madras degree course in physiotheraphy

Dr. H.V. Hande, Health Minister, of Tamil Nadu said in Madras that the diploma course in physiotheraphy offered at the Madras Medical College would be upgraded into a degree course. Formalities in this regard would be processed with the Madras University. He was inaugurating the State branch of the Indian Association of Physiotherapists. He said the Government was considering a proposal to upgrade the posts of physiotherapists. He underscored the need to make the Institute of Rehabilitation and Limb Centre at K. K. Nagar an independent and self-contained unit. Mr. T. B. Ranganathan, Chairman of the State Physiotherapists Association underlined the need to upgrade the diploma course and to increase the number of seats.

Academy of South Indian languages being set up in Bihar

Bihar Government proposes to set up an academy of South Indian languages in Patna. Dr. Jagannath Mishra, State Chief Minister said in Madurai that Rs. 3 lakhs had been earmarked for the purpose. More funds, if required, would be sanctioned later. Dr. Mishra said the three language formula was being implemented in his State and one of the languages taught was a south Indian language.

Job-oriented courses at Kurukshetra

Twentyfive of the 61 Government and private colleges affiliated to Kurukshetra university have volunteered to start job-oriented courses at the undergraduate level under a University Grants Commission (U.G.C.) scheme. Under the scheme, an undergraduate student is required to take two core subjects and one applied subject. For instance, a student may opt for physics and mathematics as the "core" subjects and electronics or computerisation as the "applied" subject.

An arts student may go in for economics and mathematics as the "core" subjects and banking or rural industrialisation as the "applied" subject.

Meet on status of Panjab University

The Education Ministry has called a meetig nof the Chief Ministers of Punjab and Haryana in New Delhi to resolve the dispute about the status of the Panjab University, Chandigarh.

Punjab claims that it should have control over the university, which is presently a central institution. They argue that not only an overwhelming majority of the colleges affiliated to the university are from Punjab, but also the State Government gives Rs. 2 crores annually to the university. Haryana's stand is that the state cannot be deprived of its representation on the university bodies. The State Government last year reversed its dicision disaffiliating all its colleges from the university. It decided to get 19 colleges of Ambala district reaffiliated, besides offering to pay its share of the expenditure.

Silver jubilee of Sanskriti Bhavan

The inaugural session of Silver Jubilee Celebrations of the Bharatiya Sanskriti Bhavan will be held at Bhubaneswar in the last week of September, in collaborations with the Utkal University. Two other sessions will be held later on in Delhi and Calcutta respectively. A large number of educationists, litterateurs, social workers, artists and scientists from Orissa, Assam, Nagaland, Manipur, Tripura Meghalaya, Bihar, Arunachal, West Bengal and other States of India and Bangladesh are expected to attend the conference and participate in seminars on "Emotional Integration and Indian Literature", "Indian Culture and National Integration etc.

UP honour to Premchand

Mr. Vishwanath Pratap Singh, Chief Minister, said that the UP Government had decided to establish Premchand Chairs in two universities of the State.

Opening Prem Chand Centenary celebrations at Lucknow the Chief Minister said the Government had also decided to set up a suitable memorial for the eminent literature at Varanasi where he lived and worked.

PU panel on elections

A 12-man committee headed by Shri R. S. Chitkara and appointed by Panjab University to bring about reforms in the present system of election to the Senate from the registered graduates' constituency, took note of the charge that a large number of bogus voters figured on the voters' list of the university.

One of the measures suggested was that a fresh list of voters should be drawn up every four years on the eve of the elections. Fifteen fellows are elected to the Senate from the registered graduates' constituency.

UP universities law amended

The Uttar Pradesh Government has promulgated an ordinance under which the term of members of the Executive Council of the State universities nominated by the Governor (Chancellor) has been reduced from three years to two years.

The Governor nominates four persons known for their services in the field of education to the Executive Council of each of the State universities.

Refresher course in medicine

The Central Government has evolved a scheme to introduce a six-week refresher course in post-graduate institutions of the Indian Systems of Medicine and Homoeopathy, which have the facilities and the personnel for undertaking such training programmes. The aim of the scheme is to upgrade the knowledge and skills of the undergraduate teachers of the ISM colleges and train them for imparting qualitatively superior and adequate instruction to undergraduate students in a more meaningful and relevant manner.

News from Agril. Varsities

Seminar on IRDP held at PAU

Inaugurating a 3-day regional seminar-cum-workshop on Integrated Rural Development (IRD) and Block-level Planning organised by the Directorate of Extension Education of the Punjab Agricultural University, Dr. S.S. Johl, Director of Research said in Ludhiana that mere advancement of loans to the members of the weather section of rural society without giving them proper training and technical guidance would not solve the problems of rural poverty and unemployment. Rural development plans should be need-based and these be implemented with all seriousness.

The seminar, sponsored by the Government of India, was attended by more than 30 delegates from Punjab, Haryana, Himachal Pradesh and Jammu & Kashmir and discussed various problems relating to block-level planning. Technical information regarding the effective implementation of the IRD programme would also be provided to the concerned officers engaged in this programme.

Mr. G.L. Bailur, Joint Secretary in the Union Ministry of Rural Reconstruction said that the objective of the IRD Block Plan was to provide financial assistance to 3000 families belonging to weaker sections from each block so that they could start their own small projects including cottage industries to earn their livelihood honourably.

Fertilizer orientation course at HAU

Dr. P.S. Lamba, Vice-Chancellor, Haryana Agricultural University while inaugurating the 8th Fertilizer Orientation Course organised by the Fertilizer Association of India (FAI) and H.A.U. jointly, said that Our fertilizer requirement would increase to a great extent in the coming years and we would not be able to meet the demand unless we increase the fertilizer use efficiency considerably. Fertilizer is the costliest input which needs most effective management to cut down the cost of cultivation. He said that the Indian fertilizer industry has expanded rapidly and India ranks as the fourth largest producer of nitrogen fertilizer. The consumption in the country has reached a level of 5.6 million tonnes annually. It will be necessary to double the consumption in the next five to six years. Dr. Lamba expressed the concern at the adulteration in fertilizers. Dr. R.V. Mishra, Regional Executive of F.A.I. (Northern Region) said that the objective of the course is to orient the participants with the various aspects concerning fertilizers including marketing, quality control and efficient fertilizer use. Sixty participants mostly specialists in soil science participated in this three day course.

Govt. officials visit PAU

A group of 36 officers from various ministries of the Government of India, visited the Punjab Agricultural University recently to acquaint themselves with agricultural research methodology. They were led by the Deputy Director, Institute of Secretariat Training and Management of the Government of India (Department of Personnel and Administrative Reforms) of the Ministry of Home Affairs. They were shown round the Departments of Plant Breeding, Animal Science, College of Agricultural Engineering and the Museums of Rural Life of Punjab and Water and Power Resources and the Library.

Use of saeseed cake in poultry feed in place of maize

Very rich in carbohydrates, salseed cake holds promise of being a good energy source in the poultry diet but for its tannic acid content. The animal nutrition and food technology department of Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV) has developed an economic process which reduces its inherent 11 per cent tannic acid content to 0.17 per cent. In research experiments at JNKVV, tannin-free meal was completely substituted for maize in the diet of pullets from post hatching stage till 20 weeks of age. After this age, the pullets were switched on to the conventional layer ration. These birds came in to lay at 23 weeks and produced eggs at the rate of 62.4 per cent in one hundred days.

The cost of chemical required for processing 100 kg of salseed cake meal by the newly developed method comes hardly to three rupees.

Seminar on soil improvement at HAU

The Soils Department of the Harayana Agricultural University organised a two-day workshop on "Improvement of Soil Physical conditions to increase Agricultural Production in Problematic Areas" from 4th August, 1981. Dr. P.S. Lamba Vice-Chancellor, inaugurated the workshop. He said that the excessive permeability of soil and its low water retention capacity are among the main hinderances in farmer's way of getting higher yield. Highlighting the soil problems of the country and Haryana in particular, Dr. Lamba said that about 40 to 50% irrigation water can be saved in excessive permeable soil by creating sub-surface compaction through passes of a heavy iron roller on the soil surface. He called upon the scientists to evolve special soil and water management practices for the farmers of Haryana. Dr. M.S. Randhawa, Deputy Director General of Indian Council of Agricultural Research (ICAR) called for a systematic study of soil physics. About 60 scientists from various parts of the country participated in the workshop which was organised jointly by HAU and ICAR.

Sir Chhotu Ram Chair proposed at HAU

In order to commemorate the birth centenary of Sir Chhotu Ram, which falls during this year, the Haryana Agricultural University has instituted a special Professorship known as Sir Chhotu Ram Chair in Agril, Economics at the instance of the State Govt. Under this scheme, there is a post of Professor of Eminence in Agril. Economics (Sir Chhotu Ram Chair) which is proposed to be filled up. The post carries the pay of Rs. 3000/- and usual allowances. Eminent scientists of National and International repute with distinguished and productive record of work in the field of Agricultural Economics will be considered. Those interested in the post may send their bio-data to the Registrar of the University.

Recent AIU Publications

1.	**Question Bank Book Series Pharmacology (Med.)**	**Rs. 35.00**
2.	**Monograph on Moderation of Examination Results**	**Rs. 5.00**

News from UGC

Autonomy for two AP colleges

Two colleges in Andhra Pradesh are to become autonomous. They are the University College for Women, Hyderabad, and the College of Arts and Science, Kamareddy. Both these colleges are affiliated to Osmania University in Hyderabad.

This is the first time in the State that autonomous status is being given to a college. This will enable them to formulate their own curricula and courses of study and methods of evaluation for examinations.

The proposal for grant of autonomy to these colleges was made by Osmania University to the University Grants Commission, which accepted them after a 'spot' examination of the facilities in these colleges by an expert committee set up by the Commission.

The Committee has made a number of recommendations for introduction or improvement of some courses which are being sent to the University for necessary action.

The Commission has so far approved autonomy to 13 colleges affiliated to Madras University, 3 colleges affiliated to Madurai University and an Institute of Technology in Bihar affiliated to Ranchi University.

More assistance to colleges in sixth plan

The University Grants Commission has decided to raise from 75% to hundred per cent its basic assistance to colleges for their development during the sixth plan period. This will cover books and journals including book banks and equipment.

The assistance will be available to colleges which fulfil the criteria laid down for such eligibility. The assistance for purchase of books and journals and for establishing or strengthening book banks will be at the rate of Rs 50 per student subject to a maximum of Rs 40,000 to a college for the plan period. The college will be required to utilise a minimum of 30 per cent, but not more than 50 per cent of the book grants for the setting up of book banks or expansion of the existing ones.

Assistance for equipment will be calculated at the rate of Rs 150 per student in courses involving laboratory work, subject to a maximum of Rs 50,000 to a college.

Under the guidelines formulated by the UGC for developmental assistance to colleges in the sixth plan, every viable and eligible college will be provided with basic grants for adding to their laboratory and library facilities, as also for faculty improvement programmes inclusive of the training of teachers. The scale of assistance for faculty improvement programmes will also be hundred per cent.

Besides funds for general development, colleges will also receive grants for special programmes and support to research.

UGC evolves new policy

The University Grants Commission has evolved a policy-frame for the development of higher education over the next 10 to 15 years encompassing many redical points of departure from the present system Dr. (Mrs.) Madhuri R. Shah, Chairman of UGC said in New Delhi that the university system of the future would be three-dimensional. Besides the age-old objectives of teaching and research extension (social services) has been added as the third dimension. The need to integrate extension with the curriculum was simultaneously gaining ground.

Dr. Shah said a graduate of tomorrow would be judged as much by what he had done for also cover emergent and inter-disciplinary areas of experience. This should prove the beginning of the end of the old value system in which proficiency in English was apparently more important than an understanding of one's own cultural heritage. She, however hastened to add that it was not that English would be given up in the new scheme of things. But it would figure more as a vehicle of knowledge than a status symbol. Equally important for the future was the task of making the educational system both dynamic and flexible. A consensus had already emerged out of the Vice-Chancellors' conference for restructuring courses at the undergraduate stage, according to a time-bound programme. The redesigned courses should be relevant and significant not merely to the students but also to the nation as a whole and help in bringing about social transformation and national development.

UGC not in favour of opening new universities

The University Grants Commission has decided not to grant permission for the opening of new Universities as it would only worsen the problem of the educated unemployed. Dr. Madhuri R. Shah, Chairman, said in Jabalpur that exception could be made only in case of the backward and undeveloped areas. She said the UGC had decided not to give developmental grants to the Universities duplicating the subjects of other neighbouring Universities. Rejecting the idea of the Vice-Chancellors' nomination by the State Government, Mrs. Shah said preference should be given to educartionists having administrative capability in the appointments.

The UGC chief said that she was in favour of continuance of reservation of seats for scheduled castes and tribes at the time of entrance in colleges, including professional college, but not for post-graduate courses. There should be no reservation of seats in masters degree courses, she added.

Speaking at a Rotary Club

meeting, Dr. Shah said that minimum and certain percentage of marks should be fixed for admission of SC and ST students in professional courses. The government and educational institutions should strictly abide by the rules made by them.

She favoured concessions to these communities as they were backward and had suffered for a long time and had not reached near the mainstream of the society.

UGC to develop colleges in backward districts

The University Grants Commission has decided to identify and develop selected colleges in districts, which do not have even a single college eligible for its assistance, according to the general norms. It had suggested that the universities should survey and identify one or two colleges in such districts and recommend proposals for their development. The step is part of the Commission's efforts to remove regional imbalance in higher education. The Commission has also decided to relax its norms in order to extend assistance to colleges which have a sizable number of Scheduled Castes or Scheduled Tribes students, but are not viable.

SPORTS & NSS

Imported equipment at Patiala NIS

A substantial part of the imported equipment required for the training of Indian probables for the 1982 Asian Games, scheduled to be held in New Delhi, has already reached the National Institute of Sports, Patiala, where a majority of the probables are trained. For the first time in India basketball probables are using fibreglass backboards which support the scoring cases. The backboard set has been imported from the U.S.A. Because of its exhorbitant cost only one set has been imported. For the swimmers six diving boards have been imported also from the U.S.A.

Indian athletes will get a feel of a large number of imported items. For the throwers javelins are being imported from Sweden and the U.S.A. Orders for the javelins have already been placed by the N.I.S. authorities.

Fibreglass vaulting poles, imported from the U.S.A. have already been distributed among the probables currently attending a training camp at Patiala. Besides these, the authorities are importing electronic timing devices. For the athletes the synthetic training track will be ready for use by the end of January. It will be a three-lane track.

The N.I.S. has already taken delivery of a second-hand yacht from a supplier in Britain. The yacht was used by Mongia. India's top sailor in the World Yachting Meet which concluded recently. According to a letter received by Mr. Anand from Mongia, the yacht, purchased for £ 2,000, is in excellent condition. The N.I.S., which already had one set of imported gymnastic equipment, has imported another set. Another set is expected shortly, which, however, may not be required for the training of the probables. It will be used during the Asiad itself. Two wrestling mats, each costing Rs. 80,000, have reached the N.I.S. The mats are from France.

Other items on order include a dozen archery bows from South Korea, Garuda badminton shuttle cocks from Indonesia, 50 dozen Dunlop golf balls from U.S.A., weightlifting equipment from the U.S.A., boxing gloves from Japan, shooting equipment from West Germany and ammunition from Italy and West Germany and racing bicycles from Singapore.

Eastern wing of NIS at Bidhannagar

The Eastern wing of the Netaji Subhash National Institute of Sports, will start functioning shortly at the newly-built sports complex at Bidhannagar near Calcutta. Although the complex will be formally inaugurated on January 23 next—the birth day of Netaji Subhash Chandra Bose after whom the Institute has been named—the work will start soon with the appointment of the director. Dr. Amrik Singh, Chairman of the Society for National Institutes of Physical Education and Sports said that Mr. Kedar Nath Bhattacharjee, former Deputy Director of State Transport Corporation of West Bengal has been selected to head the eastren wing.

Speaking after the 2-day of the SNIPES Board, Dr. Singh said that services of foreign coaches would also be utilised for short term period for shooting, archery cycling, and tennis. He said that meeting took a serious view of the alleged misconduct on the 5 athletes while they were in the Bangalore coaching camp and set up a two-member committee comprising board members Mr. A.J. Anandan, Director Youth Services, Karnataka and Mrs. H. Bakshi, Principal Airport School, Delhi to go into the rules and procedures of the future camps.

To promote sports among the scheduled castes and scheduled tribes the Board recommended to the Government to start two separate All India tournaments in major disciplines for them. The Board also decided to grant fellowships to do research work on sports and physical education. It was also planned to hold an international sports seminar in the country with the representatives of the non-aligned nations next year but the date and venues will be decided later.

UNIVERSITY OF DELHI

Advt. No. Estab. V/69/81 Dated the 7th August, 1981

Applications on the prescribed form are invited for the following posts:

Department	Designation
Botany	: Two Professors (One in the field of Cytogenetics/Ultrastructure) One Reader One Research Associate
Management Studies	: One Professor One Reader One Research Associate
Anthropology	: One Reader
History	: One Reader (South Campus)
English	: One Reader (For post M.A. course in the teaching of English as a second Language)
Philosophy	: One Reader (South Campus)
Chinese & Japanese Studies	: One Reader in Chinese Language
Psychology	: One Lecturer
Social Work	: One Lecturer
Political Science	: One Lecturer (Temp. bill 15.3.83)
Law Centre—II (Faculty of Law)	: One Lecturer (Temp. upto 15-4-83)
Law Centre—I (Faculty of Law)	: +One Part-time Lecturer
Central Science Facility	: One Electronic Engineer
Directorate of Hindi Medium Implementation	: One Joint Director One Assistant Director
W.U.S. Health Centre	: Two Medical Officers *One Pharmacist (Reserved for Scheduled Caste) *One Nurse (Reserved for Scheduled Caste)

Note: General category of candidates would also be eligible to apply for the post of Nurse. However, their candidature would be considered only if no suitable Scheduled Caste candidate is found for the post.

Chemistry	: *One S.T.A. (Photographer-cum-Artist) *One Technical Assistant (Reserved for Ex-serviceman) *Six Laboratory Attendants (Reserved 2 for Scheduled Tribes and 3 for Ex-serviceman)

Note: General candidates would also be eligible to apply for the post of Technical Assistant. The general candidates would, however, be considered only if no suitable candidate belonging to Ex-serviceman is available for appointment.

D.U. Library System	: One Professional Junior *Professional Assistants (Two reserved for Scheduled Caste and one for Schedule Tribe)

Note: General candidates would also be eligible to apply. The general candidates would, however, be considered only if no suitable Scheduled Caste/Scheduled Tribe candidates are available for appointment to the vacancies reserved for them.

Physics	: *One Technical Assistant (Reserved for Scheduled Tribe) *One Carpenter
Hindi	: One Literary Assistant
Fac. of Music & Fine Arts	: *One Tabla Accompanist *One Sarangi Accompanist
Central Office	: Junior Stenographers (English) Junior Assstt.-cnm-typists (English)

Note: Certain percentage of the total number of vacancies for the posts of Junior Stenographers and Junior Assistant-cum-typists is reserved for Scheduled Caste/Scheduled Tribes and Ex-servicemen).

Modern European Languages	: *One Junior Assistant-cum-typist (Russan) *One Semi Professional Assistant
Geography	: *One Laboratory Attendant
Zoology	: *Four Laboratory Attendants (Two reserved for Scheduled Tribes)

Note: Against one of the posts reserved for Scheduled Tribe, General category candidates may also apply However, they shall be considered only if no suitable Scheduled Tribes candidates is available.

D.U. Guest House	: One Helper (Reserved for S/C)

*Indicates that the post is being readvertised Those who have applied in response to the earlier advertisement for this post need not apply again, but in case they have any additional information to supply, they may do so.

The scales of the pay of the posts are:

Professor : Rs. 1500-60-1800-100-2000-125/2-2500.

Reader : Rs. 1200-50-1300-60-1900

Lecturer : Rs. 700-40-1100-50-1600

Research Associate : Consolidated monthly emoluments as under:

A-Rs. 1100/- p.m. (Fixed)

B-Rs. 1300/- p.m. (Fixed)

C-Rs. 1500/-p.m. (Fixed) (on the recommendation of the Selection Committee).

Part-time Lecturer in Law : Rs. 500/- p.m. (Fixed) for work-load ranging from 3-6 hours per week; Rs. 750/-p.m. (fixed) for work-load ranging from 7-10 hours per week.

Note: Part-time teachers in Law will be appointed initially for a period not exceeding one academic year which could be renewed after each academic year with the total tenure of appointment of an incumbent not exceeding 5 years.

Electronic Engineer : Rs. 1500-60-1800-100-2000

Joint Director : Rs 1100-50-1600

Medical Officer : Rs. 700-40-900-EB-40-1100-50-00 plus non-practicing allowance as admissible under the University Rules.

Professional Junior/Assistant Director : Rs. 700-40-1100-50-1300

Professional Assistant/S.T.A. (Photographer-cum-Artist) : Rs. 550-25-750-EB-30-900

Technical Assistant/Literary Assistant : Rs. 425-15-500-EB-15-560-20-700

Nurse : Rs. 425-15-560-EB-20-640

Semi Professional Assistant : Rs. 380-12-440-EB-15-560-EB-20-640

Pharmacist/Tabla Accompanist/Sarangi accompanist/Junior Stenographer : Rs. 330-10-380-EB-12-500-EB-15-560

Carpenter : Rs. 330-8-370-10-400-EB-10-480

Junior Asstt.-cum-typist/Junior Asstt.-cum-typist (Russian) : Rs. 260-6-290-EB-6-326-8-366 EB-8-390-10-400

Laboratory Attendant : Rs. 210-4-250-EB-5-270

Helper : Rs. 196-3-220-EB-3-232

All posts, except that of Research Associate and Part-time Lecturer in Law carry D.A., C.C.A. and H.R.A. as admissible under the rules in force in the University from time to time.

Essential Qualifications for

Professorship

A Scholar of eminence.

Independent published work of high standard and experience of teaching Post-graduate classes and guiding research for a considerable period desirable

Readership: (other than Chinese & Japanese Studies)

Good academic record with first or high second class Master's Degree in the subject concerned with a Doctor's Degree or equivalent published work.

Independent published work (in addition to the published work mentioned above) with at least 5 years' teaching experience in Honours/Post-Graduate Classes essential.

Readership in Chinese Language

a) Good academic record with first or high second class Master's degree in the subject concerned with a Doctor's Degree or equivalent published work.
Independent published work (in addition to the published work mentioned above) with at least 5 years' teaching experience in Honours/Post-graduate classes essential.

OR

b) M.A. in Chinese language and/or literature and a minimum of 5 years' teaching, research or translation work and a Doctoral Degree or publications of equivalent standard.

OR

c) A Lecturer in Chinese with 5 years' teaching experience and a Doctoral Degree or publications of equivalent standard.
d) A Lecturer in Chinese with a minimum of 10 years teaching experience.

Lectureship (other than Law & Social Work)

Good academic record with a first or high second class Master's Degree or an equivalent degree of a foreign University in the subject concerned.

Note: Second Class would mean at least 50% marks in the subject or equivalent grade.

Desirable: (i) A Doctor's Degree or evidence of Research work of equivalent standard in the subject concerned.

(ii) Teaching experience of Degree/Post-graduate Classes.

Provided if a teacher is not a Ph.D./M.Phil./M.Litt. at the time of his/her appointment and does not qualify himself/herself for the award of Ph.D./M.Phil./M.Litt. degree from a recognised University in the subject which is being taught by him/her within a period of 8 years from the date of his/her appointment or does not give evidence of research work within that period in the subject concerned, he/she shall not be entitled to any future increments after the expiry of the said period of 8 years till such time he/she fulfils the above mentioned requirements.

Lectureship in Law

Consistently good academic record with a first or high second class (B+) Master's degree in Law or an equivalent Degree of a foreign University in the subject concerned.

Explanation: Consistently good academic record would mean overall record of all assessments throughout the academic career leading to the Master's Degree, which should be at least B+ or high second class.

Lectureship in Social Work

Consistently good academic record with a first or high second class B+ Master's Degree or an equivalent degree of a foreign University in the subject concerned.

Part-time Lecturer in Law

Good academic record with first or high second class Bachelor's or Master's Degree in Law, practice at the Bar for atleast 5 years of which atleast 3 years should have been in the Trial Courts. Previous teaching experience desirable but not essential.

Research Associate

Consistently Good academic record with first or high second class (B+) Master's Degree or an equivalent degree of a foreign University in the subject concerned.

Note: Initial appointment will be for a tenure period of three years extendable by another two years only. In no case the tenure will extend beyond 5 years in all.

Electronic Engineer: (Central Science Facility)

Second Class Post-graduate degree in Engineering or Science with at least 10 years' experience with proven ability in maintenance and repairs of Electronic/Electrical/Scientific equipment.

Note : Post-graduate degree in Engineering or Science means degree such as M.E., M.Tech. in Engineering in any branch, M.Sc. degree in case of Science in any of the subjects such as Physics, Chemistry etc.

Proven ability in designing and building major instruments. Capacity to lead and direct R & I activity instrumentation. Working knowledge with modern analytical instruments.

Joint Director

1. First or High Second Class Master's degree in Hindi or any one of the following Social Science subjects—Political Science, History, Economics and Commerce—with adequate knowledge of English and Hindi.

2. 5 years experience of translation from English to Hindi, editing and language vetting with evidence in the form of published work of recognised merit. This condition may, however, be relaxed to three years, if the candidate holds a Ph.D. degree.

Assistant Director

1. First or High Second class Master's degree in any one of the major Social Science subjects viz. Political Science, History, Economics and Commerce with sound knowledge of Hindi and English.

2. Proficiency in translation from English to Hindi, editing and vetting with evidence in the form of published works and/or articles of recognised merit.

Medical Officers

M.B.B.S. degree from a recognised University—Minimum experience of 3 years after completion of internship required. Candidates with post-graduate qualifications or hospital experience will be preferred.

Professional Junior

First or Second Class B.A./B.Sc./B.Com. plus First or Second class M.Lib.Sc. Degree;

OR

First or Second class M.A./M.Sc./M.Com. degree and First or Second class B.Lib.Sc. or Post-graduate Diploma in Library Science.

Senior Technical Assistant : (Photographer-cum-Artist)

Diploma in Arts and Photography from a recognised Institution. Experience in Micro filming, Reflex Printing, Projection Slides, making reproduction of Scientific drawing, charts and dark-room techniques, some practical experience in photography developing printing, enlarging, colouring and other processing work.

Note : The qualifications may be relaxed in exceptional and extraordinary cases.

Technical Assistant : (Chemistry/Physics)

Graduate in Science. Experience in Laboratory Techniques of the subjects.

Literary Assistant

First or High Second Class M.A. in Hindi. Preference will be given to the candidate who has some experience of similar nature (i.e. Literary work/Research work in an educational Institution).

Nurse

Diploma in Nursing from a recognised University or Institution.

Carpenter

(i) Trade Certificate or Diploma from a recognised Institution with some experience
(ii) Should have fair knowledge of various kinds of Timbers and should be able to help in selecting timber to suit different jobs.
(iii) Should be able to prepare articles of furniture and other laboratory apparatus to accurate dimensions (specifications) of very fine finishing.

Note : Any of the above qualifications can be relaxed at the discretion of the selection committee in case of an experienced candidate, having high degree of professional competence.

Semi Professional Assistant : (Deptt. of M.E.L.)

Degree in Arts/Commerce/Science and also Diploma/Certificate in Library Science.

Professional Assistant

(i) M.A/M.Sc./M.Com. and
(ii) B.Lib.Sc.

OR

(i) B.A./B.Sc./B.Com.
(ii) B.Lib.Sc. and
(iii) 4 years of experience of working in a University/College Library.

Tabla Accompanist

(1) Proficiency in the art of Tabla playing with particular reference to the accompaniment aspect both for Vocal (Khayal and Dhrupad gayakies) and Instrumental.

(2) Degree/Diploma in Tabla/Pakhawaj, or should have undergone training in Tabla/Pakhawaj under an established Guru, for a period not less than 3 years.

(3) Should have worked in a University/College/Recognised Institution/All India Radio, for a period not less than 2 years.

Sarangi Accompanist

(1) Sound knowledge of Music.

(2) Competence in playing Hindustani Music & Sarangi with particular reference to the accompaniment aspect.

(3) Proficiency in Classical and light Classical Music.

Pharmacist

Must have passed the Pharmacists (Compounder) course from a recognised institution and must be a registered Pharmacist.

Junior Stenographer : (English)

Matriculation or equivalent qualification with proficiency in Shorthand at a speed of not less than 80 w.p m. and proficiency in Typewriting at a speed of not less than 35 w.p.m.

Note : Candidates for the posts of Junior Stenographer will be required to appear and qualify in the tests in General English, Shorthand and Typewriting to be held by the University.

Junior Assistant-cum-typist : (English)

Matriculation or equivalent qualification with minimum 35 w.p.m in English Typewriting.

Note : Candidates will be required to appear and qualify in the tests in General English and typewriting to be held by the University.

Junior Assistant-cum-typist in Russian

Matriculation with minimum speed of 25 w.p.m. in Russian typewriting.

Note : Candidates will be required to appear and qualify the prescribed tests in General English, Russian Language and Russian Typewriting to be conducted by the University.

Laboratory Attendant : (Chemistry/Zoology)

Should have passed Matriculation or an equivalent examination with Science subjects.

Laboratory Attendant : (Geography)

(1) Matric with Science subjects/General Science/Geography.

(2) Should have worked in a Laboratory, or Matric with 3 years experience in the job requirement.

Helper

Experienced persons having attained the knowledge of Indian dishes in particular and Western Dishes in General.

Special Desirable Qualification for

Readership in Anthropology (Social)

a) Intensive field work experience in Tribal/Peasant Societies.

b) Specialisation & teaching experience in one of the following branches; Kinship, Social Structure, Peasant Social System, Social & Cultural Change, Political Anthropology, Economic Anthropology.

Reader in Philosophy (South Campus)

Other things being equal, preference will be given to the candidate with specialisation in Indian Logic and Epistemology together with sound knowledge of Original Sanskrit texts.

Readership in Botany

Specialisation in Plant Morphogenesis. Experience in tissue and protoplast culture desirable.

Readership in History: (South Campus) Medieval Indian History with knowledge of Persian.

Readership in English

Specialisation in post M.A. Course in teaching of English as a second language and/or evidence of research/interest/publications in the field of English language teaching.

Lectureship in Political Science

Candidates with Political Theory as their field of specialisation will be given preference.

Part-time Lecturer in Law

Teaching experience or practice in Labour Law, Tax Law, Military Law, Law relating to Trade Marks, Copy Rights and Patents, Limitation and Arbitration and Civil Procedure.

Lectureship in Social Work : Desirable: (In order of preference)

(i) A Doctor's Degree/or Evidence of Research work of equivalent standard in the subject concerned.

(ii) Teaching experience of Degree/Post-graduate classes or work experience in social welfare organisations :

Provided that if a teacher is not a Ph.D. at the time of his/her appointment and does not qualify himself/herself for the award of a Ph.D. Degree from the recognised University in the subject which is being taught by him/her within the period of 8 years from the date of his/her appointment or does not give evidence of research work of equal standard within that period in the subject concerned, he/she shall not be entitled to any future increments after the expiry of the said period of 8 years till such time he/she fulfils the above mentioned requirements.

Specialisation : Social Research and Statistics desirable.

Research Associateship in Management Studies

The candidate should have adequate experience in case development and case writing and also demonstrate aptitude for research.

Joint Director

1. Additional Master's degree in Hindi (in case of M.A.'s in Social Science subjects) and additional Masters degree in one of the Social Science subjects (in case of M.A.'s in Hindi).

2. Five year's experience of teaching post-graduate classes.

Professional Junior

M.A. (Social Work)

Professional Assistant

Preference will be given to the candidate having Master's degree in Science and good pronunciation of English.

Nurse

Two years experience in a recognised hospital.

Tabla Accompanist

(1) Knowledge of other percussion Instruments like Dholak, Naal etc.

(2) Knowledge of Hindustani Music (Vocal/Instrumental)

(3) Persons having educational background will be given preference.

Carpenter

Knowledge of handling minor repairs of electrical fittings in the laboratories.

Pharmacist

Two years experience in the profession is desirable.

Semi Professional Assistant (Deptt. of M.E.L.)

(a) Diploma in Russian or any other Salvonic Language, or

(b) Diploma in French or any other Romanic Language or

(c) Diploma in German or any other Language of the Germanic and Finno Ugarian groups.

Junior Assistant-cum-typist

Persons having experience and knowledge of operating P.A.B.X. will be preferred.

Note : Telephone Operators will be drawn from the cadre of Junior Assistant-cum-typists and they will be entitled for a special pay of Rs. 20/- p.m. for functioning as Telephone Operator.

Junior Assistant-cum-typist in Russian

Advanced Diploma in Russian or equivalent examination recognised by the Delhi University.

Some experience of handling books in foreign languages particularly Russian/office work.

Preference will be given to those candidates who have good knowledge of English typewriting.

Laboratory Attendant (Chemistry/Zoology)

Should have worked in Laboratories.

The prescribed application form can be had from the Information Section of the University either personally or by sending a self addressed envelope (size 13 cm × 28 cm.) with postage stamps worth **Rs. 2.90**.

The candidates will have to produce the original documents relating to their age, qualifications, experience, etc. at the time of interview.

Applications (**separate for each post**) accompanied by attested copies of Degrees, other certificates, marksheets, published research articles, etc. should be addressed to the Registrar. However, for the posts marked asterisk should be sent directly to the Head of the Department concerned. The last date prescribed for receipt of the applications is **9th September, 1981**.

Note :- 1. It will be open to the University to consider the names of suitable candidates for teaching posts who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases, in respect of all teaching posts on the recommendation of the Selection Committee.

2. Canvassing in any form by or on behalf of the candidates will disqualify.

3. Candidates from outside Delhi,

for teaching posts only, called for interview will be paid to and fro single second class rail fare.

4. The University reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant.

REGISTRAR

MEERUT UNIVERSITY
MEERUT

Applications are invited for the following posts of Technical staff sanctioned by the U.G.C. and approved by the U.P. Government, for the Department of Agricultural Botany under Sixth Plan :

(1) **GARDEN SUPERVISOR** : One post of Garden Supervisor in the grade of Rs. 230-6 290-EB-9-335-E.B.-10-385 (Likely to be revised).

Minimum qualifications : Candidates should hold a B.Sc. (Ag.) degree and preferably should have experience in supervising experimental work involving field crops.

(2) **ARTIST CUM PHOTOGRAPHER** : One post of Artist cum Photographer in the grade of Rs. 200-5-250-EB-6-280-EB-8-320 (Likely to be revised).

Minimum qualifications :- Candidates should be intermediate with Arts and Drawing, or should hold an equivalent qualification and should preferably have experience of Photography.

Note : For the above mentioned posts of Garden Supervisor and Artist Cum Photographer other things being equal, preference will be given to the Scheduled Caste/Tribe candidates who are considered fit. Such candidates should indicate in their applications that they belong to Scheduled Caste/Tribe and attach certificate to that effect from the District Magistrate of the District to which they belong. No other certificate for this purpose will be entertained.

Applications on plain paper with relevant testimonials and certificates should reach Dr. P.K. Gupta, Dean Faculty of Agriculture, Institute of Advanced Studies, Meerut University, Meerut latest by **7.9.81**. The candidates, who are in service should send their applications through proper channel.

V.B. Bansal
REGISTRAR

L.N. MITHILA UNIVERSITY
Kameshwarnagar
Darbhanga
CORRIGENDUM

In partial modification of Advertisement No. 1/80 for appointment to the posts of Lecturers in various subjects, published in this journal earlier the last date for receipt of applications in the University office in extended to the **21st of September, 1981**. The other terms and conditions will remain the same as published earlier. Those who have applied, earlier, need not apply again.

R.N. Jha
REGISTRAR

SRI VENKATESWARA UNIVERSITY

Advertisement No. EII-2/1981 (2) **Dated 12-8-1981**

Applications are invited in the prescribed form for the following posts in the University Service on or before **14th September, 1981.**

S. No.	Post and Department	No. of posts	Specialisation
1	2	3	4
	I. S.V.U. COLLEGE OF ARTS & SCIENCES, TIRUPATI		
	(a) TEACHING		
1.	Reader in Botany	One	Plant Physiology/Plant Virology/Developmental Biology/Soil Micro-Biology
2.	Lecturer in Bio-Chemistry	One	
3.	Readers in Chemistry	Two	
4.	Lecturer in Chemistry	One	
5.	Reader in Geography	One	Agricultural Geography
6.	Readers in Geology	Two	
7.	Lecturer in Geology	One	
8.	Readers in Home Science	Two	1. Foods & Nutrition 2. Home Science Extension Education
9.	Reader in Physics	One	Electronics/Spectroscopy/Solid State Physics/Thin films/Ultrasonics
10.	Lecturer in Physics	One	
11.	Reader in Statistics	One (Ty)	
12.	Lecturer in Statistics	One	
13.	Reader in Zoology	One (Ty)	Neurophysiology
14.	Lecturers in Zoology	Two	
15.	Professor of English	One	
16.	Professor of Commerce	One	Personnel Management & Industrial Relations/Financial Management/Banking/Cost Accounting/Taxation.
17.	Reader in Commerce	One	—do—
18.	Lecturer in French (Area Studies Programme Department of History)	One (Ty)	
19.	Lecturer in French (Foreign Languages)	One	
20.	Lecturer in German (Foreign Languages)	One	
21.	Lecturer in Hindi	One	
22.	Reader in Law	One	Constitutional Law and International Law, Commercial Law, Law of Crimes and Torts.
23.	Reader in Philosophy	One	Existentialism
24.	Professor of Population Studies	One	
25.	Professor of Sociology	One	
26.	Professor of Tamil	One (Ty)	
27.	Lecturer in Tamil	One	(Preference will be given for those having a degree with Telugu)
	State Bank of India Chair		
28.	Professor of Rural Banking and Development	One	
	(b) NON-TEACHNIG		
29.	(a) Co-ordinator, (b) Project Officer in National Adult Education programme in the Department of Adult Education in the scale of Rs. 1100-50-1600 and Rs. 700-40-900-EB-40-1100-50-1300, respectively (Upto the end of October, 1984)	One each	
30.	Documentation Officer, Area Studies Programme Rs. 700-40-900-EB-1100-50-1300 (Upto 31-3-1984)	One	

II. S.V.U. COLLEGE OF ENGINEERING, TIRUPATI

31.	Professor of Civil Engineering	One	
32.	Lecturer in Civil Engineering	Five (2 Ty)	
33.	Lecturer in Mechanical Engineering	Three (2 Ty)	
34.	Reader in Electrical Engineering	One (Ty)	Power Systems, Electrical Machines Control Systems
35.	Lecturer in Electrical Engineering	One (Ty)	
36.	Readers in Electronics & Communication Engineering	Two (Ty)	Microwave Engineering/Communication Systems/Electronics Instrumentation/Electronics & Communication Engineering.
37.	Lecturer in Electronics & Communication Engineering	One	
38.	Lecturer in Physics	One (Ty)	
39.	Lecturers in Chemistry	Two	Physical/Analytical/Environmental/Organic

A.P. State Electricity Board Chair

40.	Professor of Power Systems Engineering	One	

T.T.D. Endowment (S.V.U. Oriental Research Institute)

41.	(a) Reader in Epigraphy	One	
	(b) Lecturer in Epigraphy	One	

III. S.V.U. HEALTH CENTRE : TIRUPATI

NON-TEACHING

42.	Junior Medical Officer Rs. 1050-40-1250-50-1600 plus 25% N.P.P.A.	One	

IV. S.V.U.P.G. Extension Centre, Cuddapah

43.	Reader in Public Administration	One	
44.	Reader in Commerce	One	

V. S.V.U.P.G. Extension Centre, Kavali

45.	Reader in Physics	One	M.Sc. Acoustics/Electronics Ph.D.—Ultrasonics Desirable : Experience in Pulse Circuiting

VI. S.V.U.P.G. Extension Centre, Kurnool

46.	Reader in Statistics	One	Operations Research & Statistical Quality Control.
47.	Professor of Telugu (Sanjeevaiah Centre for Telugu Studies)	One	

Scales of Pay

1. Professor : Rs. 1500-50-1800-100-2000-125/2-2500
2. Reader : Rs. 1200-50-1300-60-1900
3. Lecturer : Rs. 700-40-1100-50-1600

All the above posts carry D.A. etc.,eat the University rates. There will be reservation for S.C./S.T./B.C. candidates for 'Lecturers' posts according to U.G.C./State Government guidelines.

The prescribed application form and other particulars can be had from the Registrar, Sri Venkateswara University, Tirupati-517502, Andhra Pradesh, on payment of Rs. 5/- in the case of Teaching posts, and Rs. 2/- in the case of non-teaching posts, either by Andhra Bank challan or State Bank of India challan or crossed *Indian Postal Order of the said value drawn in favour of the Registrar, Sri Venkateswara University, Tirupati-517502, Andhra Pradesh (*payable at the S.V.U. Campus Post Office only).

Those who have already applied in response to this office advertisements No. E. II(2) 1980 (1) and No. E. II(2)/1980 (2) dated 3-5-1980 and 15-5-1980 respectively, have to apply again in response to this advertisement.

The University reserves to itself the right to increase or decrease the number of posts, to fill or not to fill any or all of the above posts and to relax the qualifications when candidates with prescribed qualifications are not available or are not found suitable, to appoint candidates to posts lower than the ones for which they have applied and to consider and appoint persons who may not have applied.

Candidates called for interview have to attend the same at their own expenses.

C. Subba Raju
REGISTRAR-IN-CHARGE

OSMANIA UNIVERSITY
HYDERABAD-500 007 (A.P.)
Advertisement No. 4/81

Applications in the prescribed form toghther with the registration fee of Rs. 5/- through M.O./I.P.O./Challan 'A' are invited for the following posts in the University Service so as to reach the undersigned on or before **7th Sept. '81.**

1. Professor of Telugu ...Rs. 1500-2500 (lien vacancy)
2. Professor of Mechanical Engg. ... Rs. 1500-2500
3. Reader in Mechanical Engg. ... Rs. 1200-1900
4. Lecturer in Electronics & Communication Engineering ... Rs. 700-1600

Age

Professors ... Not above (50) years.
Readers ... Not above (40) years.
Lecturers ... Not above (35) years.

Note : Age limit does not apply to the employees of this University.

Application forms can be had from the Director, University Press, O.U., Hyderabad, on payment of **Rs 4 50** in person or M.O. or by I.P.O. **UNCROSSED** made payable to the Director, and by sending a self addressed envelope (11½ × 26½ cms.) duly stamped for ordinary or registered post.

Full particulars can be obtained from the Director, University Press, O.U. on requisition, **free of cost**, by sending a self-addressed stamped envelope.

B. Ramachandra Reddy
REGISTRAR

HIMACHAL PRADESH UNIVERSITY
Recruitment Branch
SIMLA-171 005
Advertisement No. 8/81

Applications are invited for the post of Demonstrator in Yoga in the pay scale of Rs. 300-25-600 (un-revised) so as to reach the Registrar, Himachal Pradesh University, Simla-171005 alongwith a crossed Indian Postal Order of Rs. 10/- (Rs. 5/- for S.C./S.T.) payable to the Finance Officer, H.P. University, Simla-171005 by the **5th September, 1981.**

Essential Qualifications

Graduate with Yoga as an elective or compulsory subject with atleast three years teaching experience (relaxable in specially deserving cases).

The qualifications can be relaxed in case of persons possessing adequate teaching and other experience and in case of persons of some status and experience in the field of Yoga.

Candidates already in service should send their applications through proper channel. An advance copy, however, may be sent direct.

Candidates called for interview will have to come to the place of the interview at their own expenses and bring with them their original degrees and certificates etc. for verification.

The University reserves the right to fill up or not to fill up the post or call only selected candidates for interview.

(Continued on page 496)

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PHYSICA VERLAG
Post Box 5840
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offer the following English language titles

Books :

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Dampfkessel	: TECHNICAL RULES FOR STEAM BOILERS	480
E N C '79	: ACCEPTANCE OF NUCLEAR POWER	28
E N C	: NUCLEAR POWER : OPTION FOR THE WORLD	150

Dictionaries :

Senator	: DICTIONARY OF THE STEAM GENERATING TECHNIQUE : (German-English-Spanish-French)	80
Obering	: DICTIONARY INDUSTRIAL FURNACES AND INDUSTRIAL HEAT PLANTS : (German-English-Spanish-French)	78

JOURNALS (German-Summary in English)

INDUSTRIELLE ELECTROWARME (6 Issues—Even Months)	88
ELECTROWARME INTERNATIONAL Monthly	160
GAS WARME INTERNATIONAL Monthly	160
3R INTERNATIONAL—Monthly-	160
IF DIE INDUSTRIEFEUERUNG 4 Issues a year	120

Books :

Pfanzagal	: THEORY OF MEASUREMENT 2nd Rev. Edn.	DM 60
Eichorn	: THEORY AND APPLICATIONS OF ECONOMIC INDICES	85
Brams	: APPLIED GAME THEORY	160

PROCEEDINGS IN COMPUTATIONAL STATISTICS :

Corsten Ed.	: COMPSTAT 1974	62
Gordesch Ed.	: COMPSTAT 1976	62
Bruckmann Ed	: COMPSTAT 1978	62
Barritt Ed.	: COMPSTAT 1980	68

LECTURES IN COMPUTATIONAL STATISTICS :

Skarbis Ed.	: COMPSTAT LECTURES 1	30

PROCEEDINGS IN OPERATIONS RESEARCH :

Vols 1 to 9, 1972 to 1980		613
Frowen Ed.	: A FRAME WORK OF INTERNATIONAL BANKING	60
Dwinger	: INTRODUCTION TO BOOLEAN ALGEBRA 2nd Rev Edn	

JOURNALS OF INST FOR ADV STUDIES, VIENNA :

EMPIRICAL ECONOMICS; Quarterly		125
INTERNATIONAL JOURNAL OF GAME THEORY ; Quarterly		145
IHS JOURNAL:	'A' ECONOMIC SCIENCES 'B' SOCIOLOGY & POL SCE (Quarterly)	80
METRIKA	: International Journal for Theoretical & Applied Statistics (Quarterly)	145
ZOR	: Zeitschrift for Operations Research Series : A Theory Series : B Applications Quarterly	150

NOTE : Subscriptions for Journals quoted are without Postage
Postage is always extra
BACK VOLUMES PRICES AVAILABLE ON REQUEST

Official Representatives in India :

MEDIA International
Post Box 2058
BANGALORE - 560 020

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Agrawal, Tribhuwan Das. Some psycho-social correlates of affiliation motive. Ravishankar University.
2. Dhammi, Ravi. Aggression: An experimental study. Bangalore University.
3. Gupta, Hirendranath, A comparative study of attitudes related to organizational climate and need satisfaction by the middle managers of high and low-producing industrial organizations. University of Calcutta.
4. Mallappa, K.R. A camparative study of psychological parameters of depression. Karnatak University.

Sociology

1. Nalina Devi, K. The study on the population awareness of school going children and their willingness to receive population education in schools. University of Madras.
2. Sengupta, P.B. A study of the Bengali organizations of the Bengali community in Jabalpur. University of Jabalpur.

Anthropology

1. Ambekar, Jayawant Bhimarao. Channels of communication and development in a rural community. Karnatak University.

Political Science

1. Dubey, Raj Kishori. Mahatma Gandhi ke rajnitik vichar aur sarvodaya siddhant (Hindi). Awadhesh Pratap Singh University.
2. Mahanta, Bijan. A century of administrative development of Arunachal Pradesh from 1875 to 1975. Gauhati University.
3. Padma Priya, M. Centre-state relations in India 1919-71 with special reference to Tamil Nadu. University of Madras.
4. Sengotti. K. Provincial Civil Service : A study of its evolution in Madras Presidency up to 1947. University of Madras.
5. Suresh Babu, M. Tamil Nadu Housing Board: A study in development administration. University of Madras.

Economics

1. Appa Rao, M.V.M K. Towards an approach of optional fertilizer input mix usage. Andhra University.
2. Babusaheb, Y. Deficiences in the development of infrastructure facilities in Eastern States of India since independence University of Jabalpur.
3. Bandyopadhyay, Lily. An examination of some alternative policies for increasing employment in the industrial sector of India. University of Calcutta.
4. Basu, Krishna. Intersectional analysis of a developing economy: A possible new approach. University of Calcutta.
5. Bhadar Singh. Problems of innovations in small scale and cottage industries of J&K State. University of Jammu.
6. John. Mariam. Some aspects of the transfer of foreign technology to less developed countries : A case study of the Indian fertilizer industry. University of Delhi.
7. Joseph, P.T. Production relations for major agricultural crops in Kerala. University of Kerala.
8. Krishnamoorthy, V.P. Trade and development : A case study of Indo-Soviet trade. University of Madras.
9. Narasimharao, Singaraju Venkatalakshmi. Some aspects of state finances in Gujarat. Sardar Patel University.
10. Sarasvathi, B. A study on Gandhian economic thought and its contribution to home management. University of Madras.
11. Singh, Mool Chand. Public debt and economic growth in India, 1951-1974. University of Gorakhpur.
12. Singh, Shailendra Kumar. External debt and Indian economic growth. Sardar Patel University.
13. Tyagarajan, A. Sri Lanka and South Asian economic cooperation: A conceptual and institutional framework for accelerated development. University of Madras.
14. Varadarajan, K.V. The money supply process in India with particular referenee to reserve money. University of Madras.

Law

1. Karkara, G S. A study of the contributory negligence in India. University of Rajasthan.

Public Administration

1. Sivakami, Aruna. Rajaji: A study in politics and administration. University of Madras.

Education

1. Ghosh, Sunanda. The effect of counselling on the study habits and achievement of the teacher trainees. University of Madras.
2. Patel, Pallavi Pankajkumar. Construction and standardization of general ability tests for Standards XI & XII. Sardar Patel University.
3. Sandhu, T.S. A factorial study of adolescent thought using Paiget type task. University of Rajasthan.
4. Suthar, Ishverlal Kalidas. A study of classroom behaviour of teacher trainees in the context of some personality variables. Sardar Patel University.

Commerce

1. Desai, Bhairav Harisutrai. Financial structure of cotton textile mills in Ahmedabad. Sardar Patel University.
2. Sinha, Aloka C. Marketing, planning and consumer service. University of Poona.

Management

1. Sat Paul. Liquidity management in Indian business units. University of Delhi.

HUMANITIES

Philosophy

1. Purkayastha, Bijanbehari. A critical evaluation of anti theistic arguments in Indian Philosophy. University of Calcutta.
2. Ramachandran, T.P. The Indian philosophy of beauty: Perspective and special concepts. *D. Litt.* University of Madras.
3. Vimala, K. The philosophy of Tirumular with special reference to the thirty verses called Upadesam in the Tirumandiram. University of Madras.

Literature

Sanskrit

1. Dubey, Gulab Chandra. Vagbhatta Pranita Kavyanushashan evam vritti alamkar Tilak ki samiksha. University of Gorakhpur.
2. Dwivedi, Ram Rangeele. Maharaja Vishwanath Singh ke darshnik siddhanton ka adhyayan. Awadhesh Pratap Singh University.
3. Mehta, Subhalaxmi. Krishnanand ka alochanatmak adhyayan. University of Jabalpur.
4. Sen, Ratna. The inscription of ancient Kamarrupa: A study. University of Calcutta.
5. Thiruvengadathan, A. Ramabhadra Diksita and His works: A study. University of Madras.

Urdu

1. Abdul Gani, Abdul Rahim. Urdu adab mein parody. Nagpur University.
2. Nasim Ahmed. Urdu tangned ka Mark-i-Dabistan. Bhopal University.

Hindi

1. Dikshit, Ram Sundar. Sriram Harsharan Das ke kavya ka vivechnatmak anusheelen. Awadhesh Pratap Singh University.
2. Naik, Laxman Prasad. Morphological study of Chhattisgarhi and Oriya of Western Orissa. Sambalpur University.
3. Nayak, Sudhansu Kumar. Surdas aur Jagannath ke shakti. Berhampur University.
4. Santhamma, M. Main trends in Hindi and Malayalam poetry 1945-65: A comparative study. University of Kerala.
5. Shrivastava, Uma. Adhunik Hindi pragatiwad kavya kee samajik chetna. Bhopal University.
6. Singh, Daya Shankar. Chhayavadottar Hindi kavita mein prakriti. University of Gorakhpur.
7. Yadav, Balgovind. Adhunik Hindi ke pramukh mahakavyon mein Pauranik sandarbh. University of Jabalpur.

Bengali

1. Basu, Tripuraranjan. Madhyajugar Bangla sahitya kabi sarkar. University of Calcutta.
2. Chawraborti, Namita. Rabindra sahitya byango-o-kautuk. University of Calcutta.
3. Dasgupta Mrinal Kanti. Bangla natake tragedy tattva. University of Calcutta.

4. Mandal, Jnanendranath. Rabindra-natya-chintar vivartan. University of Calcutta.

Assamese

1. Gurupadayya, Viraktamath Shivanand. A study of agricultural occupation terms in Kannada of Gulbarga District. University of Madras.

2. Sharma, Basanta Kumar. The evolution of Assamese comedy. Gauhati University.

Tamil

1. Gopinath, A. Tragic characters in Tamil epics. University of Madras.

2. Kandaswamy, T. A study of warfare upto the period of Cilapathikaram. University of Madras.

3. Manohara, A. Mary. A critical study of the origin and development of Tamil isai. University of Madras.

4. Mathiyan, P. Adverbial participles in Tamil: A historical study. University of Madras.

5. Mohanrajan, P.A. The growth of printing and publishing industry pertaining to Tamil language upto 1900. University of Madras.

6. Murali R. A comparative study of the Hymns of Appar and Sundarar. University of Madras.

7. Murugesan, K. The emotional elements in villi-Bharatham. University of Madras.

8. Muthuswami, E.S. Tamil culture as revealed in Tirukkural. University of Madras.

9. Pandurangan, N. A critical study of Sathakams. University of Madras.

10. Rajendran, S. The impact of the Dravidian movement in Tamil poetry. University of Madras.

Telugu

1. Kotiswaran, C.N. A critical study of Vishnupurana of Vennelakenti Surana. University of Madras.

2. Krishna Rao, Vaidyula. Jaya Devuni Gita Govindamu andhreekaranamulu. Andhara University.

Geography

1. Sivamurthy, A. The spatial pattern of crimes and criminal behaviour in Madras City : A crimino-geographical study. University of Madras.

History

1. Pandey, Chandra Shekhar. Social and religious life of Northern India during 14th and 15th century. University of Gorakhpur.

2. Viji, Chitra Krishnan. Srirangam mural paintings. University of Madras.

CLASSIFIED ADVTS.

(*Continued from page 493*)

The number of posts likely to be filled may vary.

Application form can be obtained from the Section Officer, Recruitment Branch, H.P. University, Simla-5 personally on payment of Rs. 2/- or by making a written request to him accompanied by self addressed envelope of 23 × 10 cms with postage stamps worth 80 paise affixed to it, and a postal order of Rs. 2/- drawn in favour of the Finance Officer, H P. University, Simla-171005.

Note : Applications not in conformity with the above requirements as specified in the application form and applications received after the due date will not be entertained, and no correspondence will be entertained in this regard.

A.R. Chauhan
REGISTRAR

PUNJABI UNIVERSITY
PATIALA

Advertisement No. 20/SPS/PRO/Estt./81

Applications are invited for the following posts.

1. PROFESSOR IN GEOGRAPHY : (ONE)

(Grade Rs. 1500-60-1800-100-2000-125/2-2500)

QUALIFICATIONS

An eminent Scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level. OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

2. RESEARCH ASSISTANT IN STATISTICS : (ONE) (Leave Vacancy upto 11.8.1983) (Rs. 550-20-650-25-750)

QUALIFICATIONS

Master's degree in Statistics with 55% or more marks. Candidates having research experience and/or specialised knowledge in the subject will be preferred.

3. JUNIOR RESEARCH FELLOW (U.G C) ; (ONE)

DEPARTMENT OF MATHEMATICS @ Rs. 600/- p.m. (all inclusive)

QUALIFICATIONS

Junior Fellowship is open to persons preferably below the age of 30 years, who have obtained a Master's degree of a recognised University in the first or high second division (with at least 55% marks or B in the seven point grade system).

4. RESEARCH SCHOLAR IN MATHEMATICS : (TWO)

(Tenable for two years in the first instance @ Rs. 400/- p.m. all inclusive)

QUALIFICATIONS

Candidates should possess at least second class Master's degree with at least one year teaching/research experience after obtaining Master's degree provided that the condition of experience may be relaxed in the case of first class M Sc's/M.A.'s, provided further that a candidate with atleast 55% marks both in B.Sc /B.A. and M.Sc./M.A. could be considered in case no first class M.A./M.Sc. is available.

5. RESEARCH SCHOLAR-CUM-DEMONSTRATOR IN CHEMISTRY: (SIX)

(Two in each of the specialisations : Inorganic Chemistry, Organic Chemistry, Physical Chemistry)

(Tenable for two years in the first instance at Rs. 400/- p.m. all inclusive)

QUALIFICATIONS

Same as in the case of post 4 above.

6. MUSEUM CURATOR IN HUMAN BIOLOGY : (ONE)

(Grade Rs. 400-40-800/50-950)

QUALIFICATIONS

Atleast second class Master's degree in Human Biology/Anthropology from a recognised University. Diploma in Museology or Ph.D. degree will be considered desirable. Candidates having experience of working in a Museum relating to Human Biology will be given preference. The selected candidate may be required to conduct field work in remote areas.

7. UNIVERSITY SERVICE AND INSTRUMENTATION CENTRE TECHNICIAN 'B' (MECHANICAL)

(Rs. 320-8-400-10-500)

Certificate Course from I.T.I. with five years experience.

8. MECHANIC IN PHYSICS: (ONE)

(Rs. 200-1[illegible]-32[illegible]/[illegible]0-[illegible]0)

QUALIFICATIONS

B.Sc. 2nd class OR B.Sc 3rd class with one year experience OR ITI certificate with 1 year experience OR Matric 1st class with science with 3 years experience OR Matric 2nd class with science with 7 years experience. (Experience should be in Optical Workshop)

GENERAL

Candidates for teaching & research posts should possess working knowledge of Punjabi upto Punjabi Praveshka standard. Persons from outside Punjab could however be considered for appointment but they will be required to give an undertaking in writing that they will acquire the requisite qualifications in Punjabi within a period of two years.

Higher start within the grade admissible depending upon the ability and experience of the candidate. House rent and Dearness allowance, Provident Fund and Medical facilities according to the University rules.

Applications complete in all respects on the prescribed form accompanied by a crossed Postal Order worth Rs. 5/- Rs. 2/- for candidates belonging to Scheduled Castes/Tribes and Backward Classes) drawn in favour of the Registrar, Punjabi University, Patiala should reach the University by **21-9-81**. The forms can be had from the Production & Sales Officer, Publication Bureau, Punjabi University, Patiala on payment of Re. 1/- by sending a crossed Indian Postal Order drawn in favour of the Registrar, Punjabi University, Patiala, alongwith a self addressed envelope of the size of 25 x 10 cms. stamped with 35 paise postage which should be superscribed at the Top in bold letters REQUEST FOR APPLICATION FORM FOR THE POST OF........

Persons already in service should apply through proper channel Government servants who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before the due date and regular applications through proper channel by **23-9-81**.

REGISTRAR

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from periodicals received in AIU Library during August, 1981

EDUCATIONAL PHILOSOPHY

Ryan, Mark B. "Doldruns in the ivies: A proposal for restoring self knowledge to a liberal education". *Change* 12(8); Nov-Dec 80: 32-8, 55.

EDUCATIONAL PSYCHOLOGY

Jasdanwalla, Zaibun Y. "Influences on levels of achievement amongst students". *New Frontiers in Education* 11(2); Apr-June 81: 73-80.

Malhotra, S.P. and Jarial, Gurpal Singh. "Contribution of teachers in the development of creativity among students: A review of researches". *Quest in Education* 18(2); Apr. 81.

EDUCATIONAL SOCIOLOGY

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Horsey, Anita. "Conditions of scheduled castes and tribes". *New Frontiers in Education* 11(2); Apr-June 81: 1-36.

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BHAGALPUR UNIVERSITY

Corrigendum

1. Last date for submission of application for the posts of University Professors. Principals, Readers/Professors and Lecturers in various subjects together with requisite fee and attested copies of marks sheets, certificate, diploma and testimonials under the Bhagalpur University Services vide advertisement Nos. :- 1/81, 2/81, 3/81, 4/81, 5/81, 6/81, 7/81, 8/81, 9/81, 10/81, 11/81, 12/81, 13/81, 14/81, 15/81, 16/81, 17/81, 18/81, 19/81, 20/81, 21/81, 22/81, 23/81, 24/81, 25/81, 26/81, 27/81, 28/81, 29/81, 30/81, 31/81, 32/81, 33/81, 34/81, 35/81, 36/81, 37/81, 38/81, 39/81, 40/81, 41/81, 42/81, 43/81, 44/81, 45/81, 46/81, 47/81, 48/81, 49/81, 50/81, 51/81, 52/81, 53/81, 54/81, 55/81, 56/81, 57/81, 58/81, 59/81, 60/81, 61/81, 62/81, 63/81, 64/81, 65/81, 66/81, 66(A)/81 and 67/81 has been **extended upto 4 p.m. on 24.9.1981.**

2. In Advertisement No. 1/81—instead of four permanent and two temporary posts five permanent and one temporary posts be read.

3. In Advertisement No. 29/81—seven posts (five permanent and two temporary) of Reader/Prof. in Physics be read in place of eight posts (six permanent and two temporary). For one temporary post preference will be given to a candidate having specialisation in spectroscopy.

4. In Advertisement No. 31/81—instead of one permanent post of Reader in Chemistry with specialisation in Organic/Analyticed Chemistry, two permanent posts each with specialisation in "Organic Chemistry" and "Analytical Chemistry" be read.

5. In Advertisement No. 62/81—"Animal Behaviour" be read in place of "Animal Lubarian."

6. In Advertisement No. 67/81—Number of vacancies in respect of the appointment of Principals, may increase and reservation for female candidates may also increase.

Those candidates who have already applied in response to the above mentioned advertisements need not apply. Other conditions of the advertisement will remain the same.

Application forms together with the copies of previous advertisements can be had from the office of the Registrar Bhagalpur University, Bhagalpur-7, on payment of Rs. 2/- in cash at the counter and Rs. 5/- for sending the same by post on self addressed envelope (23 cm × 10 cm.) in the shape of crossed I.P.O. subscribed on the envelope "application for the post of University Professor/Principal Reader Professor and Lecturer. Money Order Cheque/Bank-draft will not be accepted.

R.S. Singh
REGISTRAR

SAURASHTRA UNIVERSITY
RAJKOT-360005

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V.M. Desai
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CORRIGENDUM

In partial modification of Advertisement No. 2/81 for appointment to the posts of University Professors in various subjects, published in this journal earlier, the advertisement in the following subjects are withdrawn.

(i) Geography; (ii) Psychology; & (iii) Urdu.

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Editor : ANJNI KUMAR

Issues and Options in Higher Education

S.C. Goel*

The picture of higher education in India is one of 'light and shades', of some outstanding achievements and many pitfalls, of green pastures as well as arid zones. It has two faces like those of the Roman God Janus. It has a split personality like Dr. Jekyll and Mr. Hyde.

It is noteworthy that the various schemes of national development are being implemented by personel trained in our universities. In the comity of nations, India has the third largest scientific and engineering manpower. It has a strong industrial base in all the basic and key sectors. Also, the top 10 per cent of persons trained by our universities compare with the best anywhere in the world and these together with the middle-level technicians are the mainstay of planning and development in the country. Our research output is also considerable. We can be justifiably proud of our 'egg-heads' in various walks of life. On the seamy side, it seems that education has over a period of time, degenerated into mere instruction, knowledge into a system of information and evaluation into a process of certification. Today, we are passing through a period of strains and stresses. There is a crisis of confidence between teachers and students and a general erosion of values. The contents of courses in a number of disciplines are as obsolete as the four humours in physiology. While teaching is often listless and a mechanical activity, students are obstreperous and often without any purpose or direction. Many universities and colleges have, in effect, become lackadaisical. Violence, *gherao* and destruction of public property, which are not only rampant but have become an accepted norm of student behaviour, deliver the *coup de grace*.

Conceptually, development is defined as growth plus change. In this sense, the system of higher education in India has, during the past three decades or so, grown but not developed. In 1950-51 which marked the burgeoning of coordinated efforts towards planning in India, there were 1.74 lakh students in 28 universities and 695 colleges. The number has gone up to 26.49 lakh students in 108 universities, 11 institutions deemed to be universities and 4,558 colleges in 1979-80. This represents a spectacular growth in numbers; an increase of approximately 15 times in student enrolment, 4.3 times in the number of universities and 6.5 times in the number of colleges. During the same period, the per capita income of the country has gone up from Rs. 266.5 to Rs. 1,249 i.e. an increase of approximately 4.7 times. Even this increase is at

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**Joint Secretary, UGC, New Delhi*

current prices, which implies that at constant prices the growth of per capita income has perhaps been negative. It is thus apparent that resources could not have been commensurate with the needs of higher education. Nevertheless, there have been some qualitative improvements by way of teacher-pupil ratio, the proportion of senior teachers and the relative strength of postgraduate students and research scholars. The main problem is that of magnitude; the system of higher education in India has out-grown itself. Keeping in view the limited physical resources, it can aptly be described as a dinosaur of the Mesozoic era. The effected educational system is already in a perpetual state of ineffectiveness. Like its predecessor, the system with its gigantic proportions must face the problem of survival, if not extinction.

Ever since the dawn of independence, we have been faced with a dilemma in the field of higher education. There are conflicting claims of expansion and 'equality of opportunity' on the one hand and maintenance and coordination of standards on the other. Some education-economists and celestial bodies have fed us on the theory that education and economic development are inseparably linked in a kind of 'seed and flower' relationship. There are also a large number of 'first generation of learners' who look upon education almost as an exclusive channel of vertical mobility. As a part of the 'Great Training Robbery', degree and jobs have also come to be linked with one another. These are the imperatives of the situation which have led to the unplanned proliferation of education in the country. However, due to lack of compatibility between the rate of growth of education and the rate of economic development, the economic consequences of this policy of expansion have been disastrous. The rate of growth of education in a developing country has to be somewhat higher than the rate of economic development, otherwise the society will stagnate and the gulf between the developed and developing countries would go on widening. At the same time, the rate of educational growth cannot be too high, as it is not only a question of replacing the less educated workers by the more educated persons but the society has also to find means to pay higher wages to the better educated persons.

The average growth rate of university enrolment in India during the decade 1970-71 to 1979-80 was 4 per cent per annum. This was considerably lower than the average growth rate of 12 per cent during the decade 1950-51 to 1959-60 and 14 per cent during the decade 1960-61 to 1969-70. In sharp contrast to this, the economy has grown at a maximum rate of 2-3 per cent per annum during the last three decades. In view of this sluggish rate of economic growth, it would wellnigh be impossible for us to sustain the growth of university education at any thing more than 5 per cent per annum. Any attempt to push the rate beyond this would bring, in its wake, the kinds of problems with which we were bedevilled in the fifties and sixties. We still have the hang over but the moral is not to peg the rate of educational growth at an artificially high level. If we do that the wages of educated must go down and we must face the twin problems of educated unemployment and brain-drain. Such are the laws of the market and the dynamics of equilibrium.

The fact that there is a limit to the growth of enrolments does not mean that the present level of enrolment in the country is adequate. In terms of the percentage of university enrolment as a proportion of the relevant age-cohort, India with a percentage of 5.78 is way being most of the advanced and some of the developing countries of the world like USA (55.50), USSR (21.29), France (24.42), U.K. (18.95), Canada (37.07), FRG (25.14), GDR (28.76), Australia (24.25), Japan (27.85), Israel (23.85), Argentina (28.58), Egypt (14.25), Panama (22.10), Chile (13.48), Venezuela (20.98), Austria (21.24) and New Zealand (27.93) (1976-77 figures). India can hope to reach the level of approximately 20 per cent of the age-cohort at the tertiary level not earlier than the close of the present century. This is so in view of the inevitable time-lag that must exist between one level and the next higher level of education, as shown by various empirical studies. The proportion enrolled at the second level was 20 per cent in India in 1970-71 which implies that this would be the proportion at the third level sometime in the years 2020 A.D. in accordance with the normal cycle of educational growth or 2000 A.D. if cataclysmic social changes take place in the interregnum.

It is as well that we do not have a crash programme for higher education. In this context, it is well to remember that while the developed countries in the world are in a position to treat education as a 'consumption good' and impart it to cab drivers as well as hair dressers, for a developing country like India, one has, of necessity, to think of education as an investment in man' and treat it as a closed circuit for the esoteric only. It has also to be ensured that education is relevant and responsive to societal demands. Education has also to be an escalator for maintaining internationally comparable standards.

A serious constraint or limiting factor in too rapid a growth of education in India is the abysmally low expenditure on education as a percentage of GNP/NNP. The expenditure on all types of education increased from 1.3 per cent in 1950-51 to 2.0 per cent in 1955-56 but thereafter, it remained pegged between 2-3 per cent of the national product. This is in sharp contrast to the expenditure level reached by most of the advanced countries and some of the developing countries of the world e.g. Algeria (7.6), Egypt (5.4), Kenya (5.7), Zambia (6.7), Canada (8.0), Cuba (9.9), USA (6.4), Japan (5.3), Denmark (8.2), France (5.8), GDR (5.6), FRG (5.2), Italy (5.1), Norway (7.6), Sweden (8.7), Switzerland (5.2), UK (6.2), Australia (6.3) and USSR (7.4) (1974/76 figures). In view of the competing priorities in India, it is difficult to visualize any substantial increase in the amount that may be earmarked by way of expenditure on education in the foreseeable future. One has also to reckon with the fact that education is but one sub-set among a number of

16 OCT 1981
MYSOR

parameters that go to pave the way for a growth-oriented economy and in the battle between education and bread, it is education which often loses the round.

The position regarding the expenditure on higher education, in absolute as well as relative terms, is much worse. It increased from 0.2 per cent in 1950-51 to 0.6 per cent in 1960-61 but declined to 0.5 per cent in 1978-79. Similarly, the expenditure on higher education as a proportion of the total expenditure on all types of education increased from 15.8 per cent in 1950-51 to 25.3 per cent in 1965-66 but declined to 15.3 per cent in 1978-79. The net result is that today, higher education is without any 'cushion money' and if the rate of growth of enrolment is accelerated without a commensurate increase in the level of expenditure, this would only go to cut the infrastructure in our universities and colleges to the bones.

A study of examination results for the year 1973-74 indicates that the failure rate at the B.A., B.Sc. and B.Com. level is generally of the order of 50 per cent and that at the postgraduate stage and in professional courses it ranges between 20 and 30 per cent. This shows that the wastage that goes on even at this seminal point of education is truly astounding. While a number of factors are responsible for this high rate of failure, the inescapable conclusion is that results are better in those courses and at those levels in which admissions are, by and large, regulated in such a way that only the better motivated students gain entry.

To begin with, examinations were synonymous with culture. The Chinese with an ancient civilization were the first to employ the system of formal and rigorous testing for the selection of their Mandarins. Examinations, instead of being an ally of good education and culture, have degenerated themselves into mere regurgitation of knowledge and a test of rote memory. The performance of students is judged entirely on the basis of end-of-course examinations. This does not have any backwash effect on teaching and learning. Students, especially those in the Gangetic belt, try to hoodwink the examiners and invigilators alike by all means known to human ingenuity. The world of examinees is divided between the 'cue-deaf' and the 'cue-seekers' and it is the latter who make the grade. The answer lies in spacing the examinations, in diversifying the tools and techniques, in improving the reliability, validity and objectivity of evaluation and in bringing about a closer integration of teaching, learning and assessment. Examination should become an educational experience rather than a nightmare for students and a means rather than an end.

The most relevant question for a consideration of standards in a university is the selection of students on the basis of merit in order that those who are admitted are able to benefit from university level courses. The enrolment policy has also to be related to the intake capacity of the departments and colleges concerned. Unfortunately, our universities have, by and large, been pushed into following an 'open door' admission policy with the result that we find a large number of students who have neither the ability nor the aptitude for higher education but are there like *jardiniere.* Access is as free as in any film with 'U' certificate. We have also been promiscuous in spawning new universities and colleges 'in every conurbation of the country', without any estimate of manpower planning or modicum of facilities.

Luckily, the 'wasteland of higher education' is dotted by a few islands of excellence and it is these which should be used as essential growth points for the future. Our strategy should be to have a selective approach in all development efforts instead of spreading our resources too thinly over a wide area or a large number of institutions that may happen to be moribund.

This approach of 'selective admissions' and developing 'peaks of excellence' and a moratorium on the establishment of new universities and colleges does not mean that we should not be sensitive to the needs of the weaker sections of the society or the backward areas of the country but it does mean that 'in the name of fairness and social justice', sentimentality should not go too far 'to weaken the essential toughness on which quality depends'.

The emergence of land grant colleges and the junior colleges in USA, the Education Act of 1944 making secondary education universal and the establishment of the open university in the U.K. in 1969; the spurt of evening and correspondence courses after the second world war in a number of countries, e.g. the USSR, the USA, Canada, Australia, GDR, Scandinavia and India; the Sekolah Pembangunan in Indonesia; Rahmenplan in FRG suggested by the German Education Commission (1959); the legislation enacted by Riksdag in Sweden in 1966 making gymnasium education free for adults for part-time evening study; and the concept of work experience developed by the Education Commission (1964-66) in India are but a few examples of the manifestation of the social urge to spread education to the underprivileged and weaker sections of the community. We need to go on with these voyages as also to support the sails.

Entry 66—List I of the seventh sdhedule of our constitution provides for coordination and determination of standards in institutions of higher education or research and scientific and technical institutions. This, however, has remained a pipe dream mainly because the central agencies concerned with coordination of standards were, from the very beginning, overtaken by a kind of nemesis, ostensibly on the ground of circumspection. Now that education is on the concurrent list, one of our avowedly important objectives should be the removal of regional imbalance in the growth of higher education. In the federal polity of our country, different regions ought to receive proper consideration and that too *pari passu.* It is as plain as pikestaff that so far there has been a lopsided development in the educational pyramids in different states. That the growth of higher education has been kinky can be seen from the fact that Kerala with a literate population of 129 lakhs has four universities with a total student population of about one lakh; while Uttar Pradesh with a total literate population of 192 lakhs (which is only marginally higher than that of Kerala) has 20 universities/institutions deemed to be universities with a total student population of 4.32 lakhs. U.P. sustains this system of higher education with a per capita income of Rs. 809 in contrast to a per capita income of Rs. 968 in Kerala. Investigations carried out by the author for the period 1960-61 and 1966-67 regarding regional imbalances on the basis of inter-state comparisons revealed that the variations were the greatest at the level of primary and secondary education in 1960-61, but by 1966-67 the variance in higher education had also become fairly significant although the intersectoral position remained in *status quo ante*. One can go on, *ad infinitum*, with examples of inequitable planning but the most glaring is that of unnecessary duplication in the acquisition of costly journals and sophisticated equipment by departments within the same university and lack of collaboration and interaction among institutions in the same town or among highly specialized departments in the same region. This, in a large measure, is due to our cult of possessiveness and an ingrained sense of exclusive-in our teachers and educational administrators. In order to cope with this scramble for 'more' going on in our campuses, there should be at least one plan for the development of education *sans* money. That would serve as a general tonic, if we have to break new ground.

The growth of higher education in India has been so much out of proportion that it would provide an interesting landscape for Gulliver's travels. M.S. University of Baroda with a direct enrolment of 17,250 students, Banaras Hindu University with 15,695 students, Lucknow University with 14,906 students, Calcutta University with 13,753 students and Allahabad University with 13,466 students are the Brobdingnagians. On the other hand, the Education Commission found that in 1964-65, there were 320 colleges with less than 100 students, 602 colleges between 100 and 299 students, 296 colleges between 300 and 499 students and 457 colleges between 500 and 999 students. In other words, 81.4 per cent of the colleges were below the optimum size of 1,000 recommended by the Three-Year Degree Estimates Committee. These are the Lilliputians of the system. The savants in New Delhi who often speculate on the future of higher education in the light of recommendations made by the University Education Commission (1948-49) and the Education Commission (1964-66) are akin to the inhabitants of the floating island of Laputa. While there is nothing sacrosanct about any prescribed size for a university or college and so much depends on location and mix of courses offered by the particular institution, the *Nirvana* of higher education in India would seem to lie in promoting small universities and colleges of an optimum size. These alone can be viable, both financially and academically.

More important than the size of a university is its ethos. All great universities of the world, be they at Paris, Oxford, Cambridge, Gottingen, Harvard or Princeton, have a distinctive character and personality of their own. Unfortunately our universities merely serve as templates and do not have the necessary degree of resilence or the spirit of adventure or even the temper of science which marked the growth of universities in Scotland or the early institutions founded in USA by the Pilgrim Fathers or in modern times the University at Essex. Besides being a monolithic structure, universities in India have two more characteristics which hinder their growth. They have inherited a colonial mind and a feudal outlook. Consequently, university bodies, instead of being animators, merely serve as 'impeccable iceblocks'. They have developed a hierarchy and a 'red tape' which is perhaps worse than the one which haunts bureaucracy. Universities and colleges in India also continue to be 'alien transplantations' and are not at all responsive to the evolving needs of the society or the 'neighbourhood'. They may not be living in an 'ivory tower' or be a denizen but a wide gulf often separates our students and teachers from the lifestyles of the common people. Consequently, all attempts to restructure courses of study, with a view to having local relevance or practical orientation have floundered. And so have such concepts as the one regarding 'autonomous' colleges by which universities could give a number of carefully selected colleges the much needed autonomy in formulating curricula and courses of study, methods of teaching and evaluation and other academic matters. The only exceptions are two universities, one located on the Marine beach and the other under the penumbra of the Meenakshi temple.

Teacher is the key to any reform but unfortunately instead of being a 'charter of change' he has become a bulwark for maintaining the established order. His morale has touched its nadir and he no longer considers himself as member of a profession *par excellence*. The calibration provided by the upgraded scales in January, 1973 just proved to be ephemeral and teaching has once again become a heaven. A few of them have acquired real estate through a system of compensatory coaching and cheap bazar notes and what is worse is that these tribal chieftins refuse to abide by any code of professional ethics. The elite among the teachers think of classroom teaching as a period of captivity and like to earn remission in order to go into a state of transcendental meditation so aptly called research. An idea being mooted is to maintain a record of work done by every teacher during an academic session and this indeed is worth trying except by those vice-chancellors who may happen to be pusillanimous.

Until the beginning of the present century, education was treated as 'liberal' education preparing the good citizen and the 'gentleman', who is well-informed, has an unslaked curiosity to learn and stands for the 'search of truth' and inculcation of human values. While these values are as valid today as ever before, a new dimension has been added to these, especially after the first world war.

(*Continued on page 506*)

On the Academics of Poverty

B. D. Nag Chaudhuri*

The academics of poverty unfortunately derive from the politics of poverty, on which I expect to express some views on a subsequent occasion. This discussion is mainly on the Indian situation, although a great deal of the substance of my thesis, I have been told, may apply to many of the underdeveloped nations of the world. Curiously the academics of poverty have led to the poverty of academics just as the politics of poverty is leading us to the poverty of politics. But one thing at a time.

Poverty is a relative term—the salary of an Indian university lecturer is less than the dole to an unemployed labourer in the United Kingdom. The social security paid to an unemployed scientist in the USA (another name for unemployment dole) is larger than the salary of an Indian university professor at the end of his career. The annual pension of a British academic on retirement is well in excess of a lakh of rupees, and that in the USA is considerably higher. On the other hand the ratios of academic incomes to per capita incomes in the UK and the USA are about 4 to 8 times, in Japan even less, while in India it is between 10 and 40 times. There are several connotations of these rather violent disparities. Unlike some other categories in education, university academics in our society are relatively well off even amongst the Indian bourgeoisie. They are however isolated by these very disparities and feel insecure. Their life support system is employment security because there is no unemployment relief and no value placed on academic worth, service or reputation. The relatively higher income of academics is also inelastic and the inflationary pressures, increasing prices and the polynuclear family burdens in an impoverished society have led to the immediate concern of almost all academics to earn small pittances from examinations, committee work, text book and note writing and so forth to the detriment of pursuing their teaching, studies and researches, or to find the time to think, innovate and experiment outside the narrow discipline in which they were trained when they did their Ph. Ds or masters. Another enervating anxiety derived from the heritage of a caste-ridden, hierarchical society and compounded by the sense of insecurity is the hankering after prestige and high hierarchical positions. The most sought after situations are those of heads of government scientific departments, for the prestige and the power they command. It was heartening to note, a few months ago, that a distinguished academic from this city turned down the position as a head of a newly created Government department. This is in the best of scientific traditions. I have yet to see the counterpart of senior government scientists giving up their government positions to come back to academia.

Senior Government appointments of scientists as well as those of vice-chancellors are political appointments made by politicians in power, very often for more than one reason. This brings politics into academia. Political people in power, however, would like to choose scientists (or others) who would carry out their wishes. These wishes are rarely policies, they are mostly to get people who are political reliables appointed to various positions in the universities and elsewhere. This is how political nets, more personal than ideological are created and extended. This is invariably done in varying degrees by all parties regardless of political ideologies whether Congress, Communist, Janata or Socialist. While this nepotism may not help propagation of ideology, it does encourage political resilence of which we see an inordinate amount nowadays. The loyalty is always to a person not to an ideal. A person may change his ideology, his entourage will follow suit.

This is truly the politics of the middle classes, no matter what ideology is claimed to be held. The effect of this on academics is to generate opportunism and cynicism. There is nothing worth fighting for except pay and promotion. Further aggravating this opportunism is the attitudes developed by the 'prestigious' government scientific departments. Their assumptions of wisdom would be ludicrous if it were not so painful and dangerous. They have comparatively generous funding, they can spend to explore and play around areas of science before formulating projects. Preformulation expenditure is justified by the nature of science and usually gives worthwhile benefits. However, who gives universities money to explore ideas? The universities are supposed to be fountainhead of ideas, and to come out with readymade research proposals. No wonder that most of these are condemned by the powerful research agencies as either trivial or immature. Professors, Deans and even Vice-Chancellors often want to tag their names or those of their favourites on to such research proposals or schemes. The poverty of ideas is compounded by the meanness of power.

There is no comparison between research and development funds available to the big science departments and those of the universities. The UGC has currently a five-year plan grant of around 190 crores of rupees. Some of it will go to buildings, offices, infrastructures such as library and other facilities in more than a hundred universities. The fraction allocated for research and development (R & D) projects is hardly likely to be more than fifty crores that will be left and divided amongst a hundred odd universities in the country. Compare this with current plan grants of nearly 250 crores each to atomic energy and Space and around 170 crores for the CSIR. There is certainly no sharing of poverty in our country.

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Undoubtedly some of those agencies have to spend large sums of money for projects like building a reactor or a space launch site. But the issue—an academic but an important one is that of judgments and review which holds all scientific development and research under a discipline which applies as much to universities as it does to Space, Atomic Energy, Defence and scientific and industrial research. Universities and the UGC have developed some sort of a periodic review—not above criticism—nevertheless a discipline that has value. The CSIR also had a couple of review of a sort. They were unnecessarily painful because many kinds of issues—political, administrative and scientific as well as personalities got mixed into the review process. Painful as these reviews were, the CSIR today, at least the parts that I know, are healthier than they were in the past. On the other hand, an organisation like the Atomic Energy has been a sacred cow. One agreed with Homi Bhabha that Atomic Energy should not come under academic and technical review too soon. It needed time to grow its muscles and become healthy but that was more than twenty years ago and the arguments valid at that time are now questionable. The absence of scientific review and sound criticism has been compounded by an inbreeding and closed door approach which is detrimental both to the organisation and to science. In the USA, UK, France and the USSR the turnover and exchanges at all levels, between the universities (and Institutes) and the atomic energy organisations is substantial. It is recognised as a revitalizing method and an ingress of new ideas, concepts and innovations. We accuse the universities, and very correctly, that they are sessile, there is no mobility of scientists and ideas. It holds even more strongly for the Government scientific agencies. Amongst the nation's that I have some knowledge of and they include the four mentioned, it is invigorating to find senior scientists at levels of professors at universities going into space or atomic energy or other government scientific agencies at very high levels for periods of time. Conversely government scientists including those at the very top come back to academics after various periods of time. Cockroft, Cotterel (UK), Compton, Bush and Oppenheimer (USA), Curie Joliot, Langevin (France) and Tamm (USSR) worked at very senior, even top positions in government and returned to academics. It does not seem to happen in our country except after retirement to earn a little more lucre to wind up a career.

It is not only a little less income, it is the lopsided view of what constitutes prestige and power, that prevents many of our scientists and technologists in the government agencies from coming back to academics. They have thus lost the opportunity of renewing themselves and by the same token contributed to the decreasing standards of those university systems which produced them. It is also a severe condemnation of the poverty of our purposes. The academics of poverty has led us downhill into the poverty of our academics, poverty in more than one sense of the word. □

[*Courtesy* : *The Amrit Bazar Patrika*]

Issues and Options in Higher Education

(*Continued from page 504*)

It is to make education socially relevant so that the educated persons are enabled to contribute to various sectors of national life and development. In fact, the keyward of modern times is EPR i.e. education, productivity and research.

The suggestion to link education and development does not mean that education can ever have employment as an end in itself. We talk rather glibly about 'job-oriented' courses without appreciating that Sanskrit is as job oriented as dentistry so long as society is willing to offer wages for the skills in question. It is not so much a question of vocationalization as one of creating proper job opportunities and, to some extent, of reversing the present position in which far too many persons are chasing for too few jobs.

A study of the problem of student unrest in universities and colleges over a period of time shows that although there is a definite pattern through each academic cycle, there is no single explanation for this recurrent phenomenon. While a number of agitations are due to demands of an academic nature, there are many which are related to issues outside the campus, over which the universities have no control. This is a complex problem but student participation and democratization of education would go a long way in mitigating the problem. By democratization of education, what is meant is not political democracy, but academic democracy or 'democratization of the curriculum', a phrase attributed to Andrew White, the first President of the Cornell University. The following words appear in the motto of the gerat seal of the university. "I would found an institution where any person can find instruction in any study". Such flexibility in our courses of study and curricula and the breaking away from the stanglehold of the formal lecture and attendance would be the first step from a schooling to a learning society.

In the education of tomorrow, the centre of gravity will shift from teacher-oriented teaching to student-oriented learning, from the lecture method of instruction to the preceptorial of Woodrow Wilson from spoonfeeding to guided supervision and from the classroom to the library. The structure and contents of courses and the pertinent areas of knowledge will be determined not by the pertipatetic elite, who believes in procrastination rather than innovation but by the needs and aspirations of a learning society. The journey will be from Salerno (master's guild) to Bologna (student's guild) which have been separated not so much by space as by time. □

[*Courtesy* : *The Times of India*]

Examination Reform : New Experiment to Conduct Class Tests

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In conventional method of conducting examination, all the questions are known to the students at the start of the examination and they have the freedom of distributing time for attempting different questions and also deciding the order in which the questions are to be answered.

As soon as the question papers are distributed in the examination hall, the students, after reading the entire question paper are quite often found to indulge in whisper communications or look into hidden chits with an object to get some hints for answering difficult questions. Also, as the time for answering each question is not fixed the relative ability of the students to give solution to each separate problem in a fixed time cannot be judged.

Since the order of answering questions differs from student to student simultaneous evaluation of a particular answer is rather cumbersome because the examiner has to make efforts to "locate" the answer in the answerbook.

As the time for answering a question is not constant, there is a tendency on the part of the students to write "unwanted matter" about a question which he has studied well in order to eliminate the problems referred to above. A new technique for conducting a class test was adopted by this author which is described below.

There were 61 students of fifth semester present for the test. They were told before the start of the examination that the questions would be "short answer type". At a time only one question was given to them which was read out and not written on the black board. The question was repeated only once. The time for answering each question was two minutes. A digital watch was used to mark the time for answering each question.

Observations

(1) As the time for answering each question was fixed and was just sufficient, the answers were more precise and to the point. (2) As the question was read out and not written on the black board, the students were extremely alert in catching every word. This also helped in judging the ability to follow oral communications. In every day life, "Oral Communications" predominate over "written communications" and hence the ability to quickly understand what other man is saying is of great importance. (3) The order of answering questions was fixed and hence scratching of answers and rewriting them at a different place in the answer book probably after receiving hints by "whispering communications" or hidden chits was prevented. (4) No student left the examination hall for any purpose during the time the examination was being conducted, otherwise he would have missed some questions altogether. (5) All the students were present at the start of the examination. Obviously because late coming would have resulted in missing some questions. (6) As the next question was known only when it was read out the eagerness to know the "next question" and the thrill and the excitement in the examination was maintained throughout the period. (7) As the order of answering the question was fixed simultaneously evaluation of any particular answer for all the students became easy. It may be emphasized that instead of evaluating the whole answerbook at a time the system of evaluating one particular answer for all the students at a time helps in judging the relative performance in each question in a more effective way.

In this connection, I may suggest that the answer books should be so designed that it should be possible to separate out the sheets easily. On every page roll number should be written. Every answer should commence on a new sheet. This design will help in separating out the sheets and grouping them questionwise. Thus evaluation of one particular answer at a time would be more convenient. ☐

Problem of Over-crowding in Colleges

S. L. Tulsyan*

From 1974-75 to 1979-80 the annual increase in the number of students has been at the University stage at the rate of 13 p.c. and this increase is partly due to increase in the educational facilities, but much more to the natural increase in population. This increase in the number of university students has led to the problem of excessive numbers and over-crowding and, of course, to the reduction of personal contact between teachers and students and increase of unemployment among the university trained men and women. It is therefore, being suggested that admission to the universities be restricted by selective admission in order to achieve qualitative improvement in university education and divert the new entrants in economic life to other vocations by realising the Xth class a terminal point in education. The case for restriction of admission to the Universities and vocationalization of secondary education is very strong on a-priori grounds.

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We all know that quality of education is suffering seriously owing to the over-crowding of colleges and universities, and without the abatement of this pressure, the qualitative level of our university education cannot be raised. There is no doubt that falling of the standards, which has undoubtedly taken place, is, in a very large degree, due to excessively rapid expansion of university education. But the root cause of this excessive expansion and therefore increasing pressure of unemployment among the university trained young men and young women is entirely due to alternative outlets for diverting them to other vocations not being available. The new candidates for admission to the colleges and universities and their parents very well know that the traffic on the road which they want to traverse is intolerably heavy and they would, if they could, not seek admission to the universities; but, if in spite of it, the university portals are subjected to the pressures to which they are and the flood of candidates cannot be dammed, it is because there is no other opening for these fresh entrants and they seek admission to colleges and universities because they have nowhere to go to. Restriction of population cannot reduce this pressure because for the next years those who will swell the number of fresh entrants have already been born and the numbers of those who will knock at the doors of the institutions of higher education is already pre-determined unless alternative outlets for fresh entrants are provided. The colleges and universities have no special attraction for them. They seek admission because, to repeat, they have nowhere to go to. The remedy of vocational or technical education for desirable pressure for admission to colleges and universities is no remedy at all. Unemployment among highly trained and specialized technical men is even a more serious evil than unemployment among the young persons who have received general education. It is well known that grave unemployment among the engineers, who have had the best facilities for professional education, poses a much more difficult problem in economic planning than the problem of general unemployment among educated classes. All these perplexities have arisen because, in spite of all the development that has taken place in the last decades, Indian economy falls seriously short of the need of finding work for the swelling tide of new seekers of employment opportunities. Selective admission, though highly desirable in itself, will only shift the incidence of unemployment but not reduce it materially. This is a very simple and self-evident fact of the situation. □

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S.K. Ray
REGISTRAR

CAMPUS NEWS

Marathwada hosts 3rd annual convention of college and university employees

The Third Annual Convention of the Non-teaching employees of the universities located in the State of Maharashtra was held recently at the Marathwada University Campus. The representatives from the University of Bombay, SNDT Women's University, Shivaji University, Nagpur University, University of Poona besides the representatives from the host University were present. Dr. B.R. Bhonsle, the Vice-Chancellor of the Marathwada University who was in the chair congratulated Mr. D.S. Gaikwad and Mr. Paithankar on being elected to the Chairmanship and the Secretaryship respectively of the Maharashtra Federation of Non-teaching Employees. Dr. Bhonsle emphasised the need for responsible leadership among the non-teaching employees. He decried the situation of crisis created by the employees on account of petty demands. Resorting to strikes and agtiations, he suggested, should be the last resort when the usual processes of negotiations fail to yield the desirable results. Dr. Bhonsle observed, among other things, that it is only hard work on the part of the employees, a sense of dedication and pride in the institution which would make for harmony and well being of the various components of the University.

Some of the important decisions taken at the convention were : (1) the Government of Maharashtra should eliminate the short-comings and the anamolies evident in the Bhole Commission Report. All the clerks and senior clerks should be paid the payscales on par with the employees of the Bombay University. The payscales of the technicians and the Laboratory attendants should be revised; (2) all the employees in the colleges and Universities should be given pension as a post retirement benefit; (3) the women employees should be given representation in the various forums and the children of the University employees should be made eligible for free education; (4) there should be uniformity in service rules and conditions for the employees of all the Universities; (5) efforts should be made to protect the interest of the people engaged on daily wages; loans should be given to the employees for the purpose of building houses; and there should be a machinery to take care of the welfare of the families of the employees.

The convention also urged the State Government for early implementation of these decisions.

Jha suggests new campus for Patna

The V.S. Jha, enquiry commission set up by Bihar Government has pleaded for a new campus for Patna University to ensure its proper development. The commission has felt the necessity of a uniform, compact and homogenous campus for this premier university of the state. At present the colleges and post-graduate departments are scattered in a very large area of the town right from Patna Law College in the east to Patna Women's College in the west and there is very little scope of any expansion of these overcrowded institutions. They feel that a plot of at least 1000 acres of land would fulfil the requirement of the university. Earlier the state government had agreed to allot 250 acres of land near Ganga bridge but that would hardly serve any purpose. The university must have a compact campus if the residential character of the university was to be restored.

Indirect election system for MDU

Maharishi Dayanand University has adopted the system of indirect elections to the Students Union on the pattern of Kurukshetra University. The Academic Council of the university at a meeting held recently in Rohtak decided to adopt the new system. Under the new system, if the Chief Patron of the Students Union—the Vice-Chancellor-finds that the union is unable to function effectively, he may appoint a committee of five students—with the Dean of Student's Welfare as its Chairman—to perform the functions of the organisation for as long as it may be deemed necessary. The office-bearers of the union will be elected by the members of its Students Council from among themselves by secret ballot. Besides the Chief Patron and the Patron—the Dean of Students Welfare—the council will comprise a financial adviser, a student representative from every department, a prefect from every hostel, an outstanding sportsman, the best student in cultural activities, a National Service Scheme volunteer, the best student from every department and a representative to be elected by the Editorial Board of the university magazine. In case of under-representation of girl students, the Chief Patron or the Patron should have the right to norminate two girls on the council. The Students Council and union Executive elections will ordinarily be held before the autumn break. The dates of the elections will be fixed by the Patron.

Recent upsurge in management education

Dr. Ram Tarneja, Managing Director of Bennett, Coleman and Company while delivering the keynote address on "The management education scene" at a seminar held in Bombay said whenever institutions had compromised at the entrance level, it had eventually proved detrimental. The symposium was organised by the Jamnalal Bajaj Institute of Management Studies. He said there was an upsurge in management education. There were three categories of institutions—those that came under the government, those run by universities offering post-graduate courses and there were what he called "functional institutions" in the specialised sector. There was a need for management in three areas—industries, the rural sector and institutions. He clarified that institutions included hospitals, hotels, the railways and the postal system. The rural sector would pose a challenge for the next 15 years to management education. The management of the rural sector is not simple and attempts are being made to touch on the fringe.

Mr. M.S. Patwardhan, Managing Director, NOCIL, said industry had high expectation from those who came out of management institutions. There were three areas in which industries laid emphasis—skills, qualities and attitudes. "Skills", according to him, comprised technical, analytical, conceptual, human and communication. He called upon students to be a critique of themselves. They should become familiar with all aspects of the working of the organisation. There should be a will to succeed, discipline and loyalty. He said that essential aspect of business and communication was a two-way process. He also stressed the importance of leadership and motivation.

Autonomous varsities favoured by Karnataka

Mr. Shankar Rao, Karnataka Education Minister said in Gulbarga that the Government was considering a proposal to provide autonomy in the administration of universities in the light of the Raj Committee recommendations. He was laying the foundation for a Rs. 15-lakh ladies hostel building in the Gulbarga University campus. He reiterated the Government's desire to establish a technical university as the State had 45 engineering colleges out of the total 150 technical colleges in the country. Mr. Rao wanted the universities to concentrate on the various facilities. He was happy that the agricultural universities were making available the fruits of their research to farmers. He was hopeful of the UGC extending assistance to the Gulbarga University.

Educational consultancy company to help developing countries

The Ministry of Education and Social Welfare proposes to set up an educational consultancy company to provide all facilities necessary to promote and extend technical and professional guidance, and services for educational developmental activities—particularly in the developing countries. The company, known as the Educational Consultants (India) Ltd. will have a share capital of Rs 30 lakhs to be contributed by the Government of India to keep it going for a reasonable period, till it generates its own funds.

The company will evolve its own work procedures, rules and regulations relevant to a business organization so as to be able to compete successfully and effectively with national, international and foreign agencies including the ones in the private sector. As Western models of education and training do not fit into the socio-economic structure of developing countries, India is being increasingly approached not only by the developing countries, but also by some of the international funding agencies (like the Asian Development Bank) as well as by some of the developed aid-giving countries (like West Germany) to provide help and support in this area.

Millions of dollars are being given out every year by the World Bank, Asian Development Bank and other international financing agencies for educational projects in developing countries. All this money, for preparation of feasibility studies, project reports etc. and for execution of projects, is going to consultancy firms from advanced countries because of the preference of these funding agencies and the developing countries concerned to hire only a single firm to provide the different facets of the consultancy work required. Hence, it was thought proper to establish a single educational consultancy agency in India to enable it to avail of the many consultancy opportunities available in the field of education and to establish its presence in this field, particularly in the developing countries.

The company would offer educational consultancy service to a number of agencies such as Governments and educational institutions of developing countries, funding organizations like the World Bank and the Asian Development Bank including international agencies like the UNESCO and ESCAP as well as to the Government of India in the context of its technical assistance and economic cooperation programmes. The requirements of each of these agencies would vary considerably. Education, in this context, would cover the entire spectrum of general as well as professional education and training. It would facilitate channelizing the requests for Indian expertise, technology and material supplies for educational and manpower development planning to meet the diverse requirements of a wide range of clientele. It would spread its contacts as widely as possible to organizations, institutions, establishments and individuals, both within the country and abroad, so as to provide an optimum combination of services with speed and efficiency. Its services would be available not only to foreign clients, but also to clients within the country.

In accordance with the current practice in the country, the board of directors of the company will consist of a number of full-time functional directors and a number of part-time directors. For effective coordination of the company's activities with the various national, international and foreign agencies, there will be eight part-time directors representing the Ministries of Education, Finance, External Affairs, Director-General of Employment and Training, Science and Technology, the ICAR, Health and Welfare and the IAMR. The company will have a core group of consultants and a company secretary along with supporting staff.

Kashmir to survey its pre-historic settlements

The University of Kashmir, the Physical Research Laboratory, Ahmedabad, and Deccan College, Poona, have jointly launched a programme to prepare a comprehensive and scientific report on the palaeolithic and neolithic settlements in Jammu and Kashmir. The Centre of Central Asian Studies in Srinagar has already pointed out to the discovery of two palaeolithic sites in the valley in one of their recent studies. Stone and bone tools, mainly choppers, found near Balapur and Hirpur in the Shopian area, have further confirmed an earlier claim of some experts that man lived in the valley more than two million years ago. Similar tools have already been discovered at Chakpalwal village, near Akhnoor, in Jammu Province. The first evidence of the existence of the early stone age man in the State came after scientists at the Physical Research Laboratory, Ahmedabad, examined a tool dug up in Jammu Province.

According to Prof. Maqbool Ahmed, Head of the Centre of Central Asian Studies, the soil samples gathered at the Hirpur site have yielded exciting results about the dates and the character of the finds. Experts from outside the State are helping in the study of these tools. Mr. S.L. Shali, an archaeologist, says that palaeolithic sites have also been found in certain parts of Central Asia. These indicate a strong affinity between the prehistoric civilisations of Central Asia and Jammu and Kashmir. Apart from these sites, several neolithic settlements in the Kashmir valley dating back to 4300 B.C. have been discovered. These sites are at Kuneer and Rajgir in Badgam district and Pinglish in Pulwama district. Tools like maces, axes, harpoons and chisels found at these sites represent a close link with the Burzathom site, 25 km from Srinagar. It is interesting to note that these neolithic sites are not marked by megalithic culture and one is, therefore, tempted to believe that these are much older than the site found at Burzahom. Better coordination and more funds seem to be the main requirements for the preparation of a comprehensive report on all such sites which need proper excavation.

Venkateswara produces cheap bio-detector

Two environmental biologists at the Sri Venkateswara University have developed portable, sensitive and cheap biodetector strips for spot analysis and rapid detection of hazardous pollutants like heavy metals, pesticides and fungicides in water. Based on the thin-layer chromatographic-enzymatic technique developed by them, the strips could be easily operated in field conditions because no electricity is required.

The biologists, Dr. N.V. Nanda Kumar and Miss Y. Pramela Devi, had already applied to the National Research and Development Corporation for a patent of their biodetector strips which, could be easily employed in the periodical analysis of industrial pollution and in forensic, health and toxicological laboratories and in the armed forces in India and other developing countries. Dr. Nanda Kumar said in Tirupati that the technique was simple and required no clean-up procedures like the chemical methods and other sophisticated systems utilizing atomic absorption spectra.

While the sophisticated atomic absorption spectra costing more than Rs. 2 lakhs was normally available in advanced research institutions, the biodetector strips cost about one rupee and would be operated in field conditions, based eliminating the cumbersome time consuming hours to analyse the pollutants, as the entire check-up with the strips is over in barely 20 minutes. The biodetector strips, which have been tested for more than two years in the field and laboratory, were claimed to be the first of their kind developed anywhere. Dr. Nanda Kumar said the special filter papers, catalyst, silica cell and a cigarette lighter, which were required for carrying on-the-spot analysis, could be carried in the normal pipe-smoker's stachel. The technique, which utilizes the citric acid cycle in the acetone homogenate, could be employed for quantitative and qualitative determination directly in fresh and sea water. The spectra system required the cleaning up of the salt component in water for detection and analysis of pollutants. The technique was to put the pollutants on the strips, spray acetone base over it and warm the strips by a cigarette lighter for two minutes. The catalyst and the substrate laid on another strip was sandwitched with the first strip and warmed for 10 to 15 minutes. The heavy metals appeared as a clear white spot amidst pink background.

Education Bill on anvil

The Karnataka Government is considering the proposal to draft a comprehensive Education Bill to curb malpractices in the private colleges in the State. Education Minister Mr. Shanker Rao said in Gulbarga that the Bill would be modelled on the Andhra Pradesh Education Bill, was under the scrutiny of the Law Department.

Mr. Rao said the Government was against the levy of capitation fee by the managements of the engineering and medical colleges in the State. But he recognised the practice, which was in vogue from 1977, as students paid donations to join the college. He did not agree that seats in the engineering and medical colleges were being auctioned for huge sums of money. He said Rs. 6,000 was being collected from each student of Karnataka and Rs. 10,000 to the 25,000 from outsiders. Eighty per cent of the intake in the colleges was on merit as decided by the Government and only 20 per cent of seats were given for capitation fee. Mr. Rao said each engineering college needed Rs. one crore to equip itself and the private colleges were equipping themselves in a phased manner by collecting the capitation fee.

CIEFL to train Vietnamese teachers

A three-member delegation consisting of Dr. C.S. Jha, Adviser to the Ministry of Education, Dr. Ramesh Mohan, Director, Central Institute of English, and Foreign Languages and Dr. M. Arivindan, Assistant-Director General of the ICAR visited Vietnam recently to select Vietnamese teachers for training at the CIEFL. The Government has also decided to give scholarships to the Vietnamese to study agriculture and engineering in this country. A one-year training course for the English teachers and a six-month course for the others is being planned at the CIEFL which will assist the Vietnamese in the preparation of suitable instruction material including audio visual material.

Stress on vocational courses at Patiala

Dr. Bhagat Singh, Vice-Chancellor of Punjabi University, has pleaded for the introduction of job oriented courses at the college level. He was presiding over the eighth annual conference of principals of the colleges affiliated to the university. He said a Punjabi University team would shortly be sent to Kurukshetra University to study the pattern of job-oriented courses which were being successfully managed in that university. The conference set up a seven-member committee to make recommendations for raising academic standards and improving the examination system.

Patiala to allow more private candidates

The Punjabi University Academic Council at its meeting held at Patiala recommended that all persons, eligible academically, should be allowed to appear as private candidates in all the examinations of the university in the arts and social science faculties up to the M.A. level with effect from 1982. Dr. Bhagat Singh, Vice-Chancellor of the university, who presided over the meeting said that at present the university examinations are open to various categories of private candidates, including women and amployees of Government, semi-Government and private organisations.

Centralised evaluation to continue at Magadh

Dr. K.K. Mandal, Vice-Chancellor of Magadh University has stressed the need for the continuation of centralised evaluation of the answer books in the university examinations. He feels that the centralised evaluation in the county has eliminated many malpractices which were prevalent in the past. It has also helped in the early declaration of results.

Madras to acquire a computer

The Syndicate of the Madras University has suggested that the university my instal a modern computer as early as possible. A committee for this purpose has been set up to examine the whole issue. It has been felt for quite sometime that a data cell with computer professionals is needed to streamline all the work connected with computerisation of the university examination results.

Medical council act to be amended

The Indian Medical Council Act is proposed to be amended to regulate the establishment of new medical colleges in the country. The Minister of State for Health N.R. Laskar while making this announcement in the Lok Sabha said that this will help in regulating the development of new medical institutions.

Kanpur to have Master's course in environmental sciences

Dr. (Mrs.) Hemlata Swarup, Vice-Chancellor of Kanpur University is keen to start a master's course in environmental sciences in the near future. The university has made concerted efforts towards the task of economic development and the number of NSS camps had been organised to generate consciousness among the boys and girls. It has also planned to undertake social forestry by planting trees in 40-acre university land.

B.Tech in Mining at ISM

A new degree course-B.Tech in Mining Machinery, was started a few years ago in Indian School of Mines to meet the demand of the mining industry for oriented and motivated excecutions in engineering. It is a regular 4-year engineering degree course, the only one of its kind in the country, duly approved by the University Grants Commission. After due consideration of the course curricula Coal India Ltd. have recognised this B. Tech degree in Mining Machinery at par with degrees in Mechanical/Electrical Engineering.

NCC courses in Andhra

The Andhra Pradesh Government will shortly take a decision on introducing NCC as a curriculum at the collegiate level and on providing incentives to the NCC cadets. Mr. M. Gopalkrishnan, Education Minister, said while inaugurating the NCC Group Commanders' conference in Hyderabad that the Vice-Chancellors of the State universities have agreed in principle to introduce NCC as a curriculum but the academic bodies of the universities are yet to take a final decision in the matter.

Karnataka declares exam centres as protected areas

Mr. G.B. Shankar Rao, Karnataka Education Minister, said in Bangalore that college examination centres would be declared as protected areas to afford security to teachers and invigilating staff. Legislation for the purpose would be brought before commencement of the next examinations. He said that the cadre and recruitment rules for college teachers would also be framed shortly.

Bill to amend Madurai-Kamaraj varsity act introduced

The Education Minister of Tamil Nadu, Mr. C. Aranganayakam, introduced a Bill to amend the Madurai-Kamaraj University Act restricting the term of office of members of the Senate. Syndicate and Academic Council to a maximum of two terms, each term comprising three years. The Bill provides that for the purpose of construing the term of office of the members, the term already served by a person as a member in any one or two of these bodies of the university would be taken into account at the time of consideration of his nomination for election or nomination to the body.

UGC to review history and language syllabi

The Education Ministry has asked the University Grants Commission to review from a national angle the syllabi for history courses in the universities. This statement was made by Mrs. Shiela Kaul, Minister of State for Education, in the Rajya Sabha. She said that the UGC has also been asked to review the textbooks in languages as well.

Panjab concessions to employees

Research Assistants in the Panjab University drawing the payscale of Rs. 700-1600 have been designated as Lecturers or Lecturers (Research) with the stipulation that they will go on doing the same work for which they were originally recruited. This is subject to their fulfilling the UGC norms. Similarly Coaches in the pay-scale of Rs. 700-1600 have been designated as Lecturers (Coaching). This was decided by the Syndicate of the University at its meeting held recenly.

The proposal that the name of the English-Punjabi Dictionary Project be changed to "Department of Punjabi Lexicography (Unit) in the School of Panjabi Studies" has been approved subject to the funds being made available by the Punjab Government. The designations of the staff working in the Project would be changed to those of the corresponding teaching posts in the teaching departments.

The University Press workers who were earlier contributing @ 6¼% towards the C.P.F. have now been allowed to contribute @ 10% of their pay w.e.f. 1959 to 1970 and the arrears of subscription so reckoned in each case, would be credited to their CPF account adding equal share of the University contribution.

New universities to be named after Tamil poets

The Tamil Nadu Government would be setting up two new Universities in Coimbatore and Tiruchirapalli. Both the universities will be named after the Tamil poets Subramania Bharathi and Bharathidasan. Education Minister C. Aranganayagam introduced the Bills for the constitution of the Bharathiar University and the Bharathidasan University in the State Assembly. According to the objects and reasons of the Bills, the new universities were being set up in view of the unweildy character of the Madras University, which affects the administrative efficiency of the university and also on the academic attainments of the students. The establishment of these two universities would meet the long-felt aspirations of the people of the regions and would also lead to the strengthening of the post-graduate centre as well as have additional facilities for universalisation of education like part-time and correspondence courses. The Bharathiar University will have jurisdiction over colleges in Coimbatore, the Nilgiris and Periayar districts, while the Bharathidasan University will cover Tiruchirapalli, Thanjavur and Pudukottai districts.

UPSC to publicise model questions

The Union Public Service Commission has decided to bring out shortly an information manual containing sample models and type of question papers in various examinations conducted by the UPSC. UPSC Chairman Dr M. L. Shahare feels that such a manual was necessary because of the introduction of objective type tests in these examinations. The UPSC would put 30,000 copies of the manual while the private printers would be allowed to reprint it to make it available to the examinees.

The UPSC has of late been conducting workshops to train professors in setting good objective type question papers. The civil services preliminary examination consist of one paper of objective type in general studies and another from out of 21 optional papers of the objective type. Dr. Shahare also informed that commission had to rely on a large body of experts from all over the country for building up a sizable bank of objective type questions in different subjects. The UPSC was also utilising the expertise within its own set up without any external assistance to organise workshops as an ongoing process in different disciplines taking one subject at a time. The UPSC chairman said that the emphasis during the workshop had been on the actual framing of the test items in such a way that while being of a high order they are not controversial a danger in a social science discipline like political science and history. The results achieved in the workshop would, it is hoped be reflected in the improved standard of objective test administration for selection of personnel for higher civil posts.

More autonomy for AIIMS

Mr. B. Shankaranand, Minister of Health and Family Welfare, while addressing the faculty members of the All-India Institute of Medical Sciences said in New Delhi that the Institute should take a long-term view of the health problems of the country and ensure that the benefits of research conducted by eminent experts at the institute are disseminated in a manner that there is general improvement in the standard of medical education in the country. He said that greater autonomy would be provided in the functioning of the Institute. The Health Minister told the faculty members to evolve a pattern of research that would be more in tune with the country's medical needs, conditions, resources and the socio-cultural background. Mr. Shankaranand said that while the Institute had made a significant contribution in the sphere of attaining self-sufficiency in post-graduate medical education, it was facing fresh challenges because of losses of well-trained manpower by way of brain drain. He urged faculty members to ensure that those who have conducted research should go to other parts of the country and set up research schools. The Health Minister also underlined the need for coordinating the work done at the Institute with other hospitals in the Capital so that it can play a sufficiently important role as a referral institution. The expectation of the public, he said, was continuously rising and ways must be found by which the unbearably long delays that now take place before admission to the Institute Hospital could be reduced substantially.

Uttar Pradesh will have a Himalayan studies centre

The Government of U.P. has urged the Union Government to set up a centre for Himalayan studies. It also wants that a unit of this centre be set up in each of the three universities in the hill areas of the State. The objective now sought to be pursued for the development of the hill areas of U.P. is growth with social justice consistent with protection and development of environmental assets. This would necessarily imply adoption of all measures necessary from the point of view of ecology. It has been felt that the consequences of playing with ecology would be disastrous, not only for the hill areas but also for other areas in the State and elsewhere. Therefore, it wants that national efforts in this direction should play a vital part in the development plans of the Himalayan region.

A natural corollary of this is a greater emphasis on the development of the hill areas by the State itself. The hill areas of the State comprising eight districts—five of Garhwal division and three of Kumaon division—Dehra Dun, Pauri (Garhwal), Tehri (Garhwal), Uttarkashi, Chamoli, Naini Tal, Almora and Pithoragarh, have a population of over 4,788 million and an area of over 51,000 square kilometres, which is approximately 4.3% and 17.4% of the population and area of the State. The plan outlay for 1980-81 was Rs. 86 crores and the Central assistance component Rs. 41.20 crores. The outlay for 1981-82 is Rs. 100 crores and the Centre has acceded to the State Government's request for increase in the share of special Central assistance for the hill areas in the form of 90% as grant and 10% as loan. The State Government wants that 100% funds should be provided by the Government of India for the management and integrated development of critical watersheds. It has already decided to take up the development of the area in an integrated manner on the basis of micro-watersheds for which integrated plans will be prepared separately and implemented with the help of multi-disciplinary teams on a time-bound basis.

News from Agril. Varsities

Multi-disciplinary centre for agro-energy research to be set up

The Government of India was considering the establishment of a multi-disciplinary centre of agro-energy research. Union Agriculture Minister Rao Birendra Singh made this announcement while inaugurating a regional project seminar on organic recycling in Asia. He said the proposed centre would be given a mandate to develop systems suitable for different agro-climatic areas for increased energy input-output ratio and harnessing of renewable sources of energy.

Rao Birendra Singh said in any discussion of organic waste, rural composting should receive primacy of place. Livestock wastes have been used as manure traditionally by the farmers in India as well as other countries of the region. With the introduction of chemical fertilisers unfortunately this area had fallen into neglect. In India there was a potential of producing over 600 million tonnes of compost annually against the present production of rural compost roughly estimated at 225 million tonnes. The Minister said that while the farmers were generally aware of the utility of compost for sustaining soil health and productivity, wide adoption of scientific methods of compost production was lacking. This was one area where mass mobilisation of efforts was extremely essential. One of the crucial constraints against the fuller utilisation of organic resources for agricultural production was the compulsion to use it as a source of fuel in rural areas.

Agricultural meteorology as a new discipline

The Punjab Agricultural University is the first agricultural university in the country which, appreciating the role of weather in crop production, has strengthened the subject of Agricultural Meteorology for teaching, research and extension. Agricultural Meteorology is the science of the relationships between weather and crop plants and can play a great role in increasing farm production. The National Commission on Agriculture has recommended that each agricultural university should have a full-fledged department of agricultural meteorology. In PAU this department was created in February 1981. Earlier M.Sc. programme in agricultural meteorology was started in 1979-80. This Department will work to improve agricultural production by suggesting adjustments in cropping patterns, agronomic and cultural practices. It will identify the exact climatic requirements of the crops at critical growth phases and then suggest appropriate measures to soften the effects of weather. It will provide agrometeorological forecast and suggest methods to fight effects of weather hazards, like frost, cold and heat, waves, storms and drought.

Another useful contribution of this science is in the conservation of the precious resource of water by scheduling irrigations on the basis of "evapo-transpiration". This loss of water depends upon temperature, wind and humidity in different areas. Still another area of assistance is in controlling the pests and diseases of crop plants and livestock by giving timely warnings of the anticipated weather under which these pests/diseases take an epidemic form. An important objective of the Dept. of Agricultural Meteorology will be to make the farmers weather conscious.

Sericulture course at Bangalore

The University of Agricultural Sciences will start a sericulture course at the B. Sc. level from the next academic year. Dr. R. Dwarakinath, Vice-Chancellor said in Bangalore that the Academic Council has decided to do away with the test now being conducted to fill 15 per cent of seats reserved for farmers' sons. However, selection for this category would be done on the basis of general merit.

He said, the university had been able to sponsor students to international seminars and symposia for which expenses were being borne equally by the university and the Indian Council of Agricultural Research. He also said the university-has contributed much in starting bio-gas plants in places under its jurisdiction.

Puri inaugurates summer institute

Mr. I.C. Puri, IAS, Acting Vice-Chancellor of the Punjab Agricultural University said that while knowledge of science doubled every ten years and that of the subject of biology doubled only in 5 years, in the field of genetics it doubled every two years. With such rapid advances, he said, what seemed fantasies in the past had now turned into realities of today and a hope for the future. Mr. Puri was inaugurating a one-month summer institute on 'Recent Advances in Genetics and unconventional Techniques in Crop Improvement' at the Campus. The Institute which was organised by the Department of Genetics in collaboration with the Indian Council of Agricultural Research was attended by 25 participants with one participant from each State and 7 from central research institutes.

Mr. Puri said the research findings of the Genetics Department had laid foundations for considerable development in agriculture particularly in the improvement of crops like wheat, maize, millets, pulses, oilseeds and fodders. It has also evolved new Napier Bajra hybrids and seasonal forage types.

Dr. A.S. Atwal, Dean, Post-Graduate studies said that while the research being done at the traditional universities was of fundamental value, the research being conducted at an agricultural university was of applied nature and greatly helped in solving the farmer's problems.

State animal husbandry officers workshop at HAU

Mr. Shiv Ram Verma, Haryana Minister for Animal Husbandry while addressing the Haryana State Animal Husbandry Officers Workshop at Haryana Agricultural University, Hissar, emphasised the need of more frequent and closer contacts between the scientists and the field workers. He said that as much emphasis on the prevention of diseases in animals should be laid as on the cure of the diseases. He further sed that there was an urgent need of transferring latest technology to the animal breeders before the technology becomes outdated. The sooner the research reaches the farmers the more confidence he would have in the field workers as well as in the scientists. In his presidential address, Dr. P.S. Lamba, Vice-Chancellor of the University said that the Government should evolve some methods to expose the field workers to the latest researches by organising refresher courses, training and workshops. He said that one and a half times more yield in milk could be obtained if systematic rearing of animals is adopted. He said that the allotment made for the livestock development in the past was much lower than that which has been made for various agricultural programmes. Thus only one in 15 of the beneficiaries was given help for livestock development in the 4th plan. However, he said the situation has slightly improved now but it is not commensurate with the need of the day.

Australian trade delegation at Ludhiana

An Australian Trade Delegation containing industrialists, academicians, farmers, diplomats, bankers, etc. visited the Punjab Agricultural University. The purpose of their visit was to acquaint themselves with India's capabilities in agricultural, mining, manufacturing and commercial sectors and identifying areas of co-operation with India either for setting up joint ventures in the two countries or in this country's market. The Acting Vice-Chancellor, of the University welcomed the Delegation which were led by Mr. J.B. Gough, OBE Managing Director, Dunlop Olympic Ltd., Melbourne. They showed interest in the work of plantbreeding, animal production and development of agricultural machinery in the Punjab Agricultural University. The University suggested co-operation in wheat production technology, manufacture of medium-sized agricultural machinery and export of fine quality of rice.

Australian delegation visits HAU

An Australian delegation led by Mr. J.B. Gough visited the Haryana Agricultural University and had prolonged discussion with the Vice-Chancellor, Dr. P.S. Lamba. The possibilities of cooperation between the two countries in the field of agriculture and the knowhow to develop a guar gum industry in Australia were explored. It was felt that more information on the guar crop could strengthen Indo-Australian trade relations. Mr. Gough said there was a great potential for guar gum industry in his country because of its diverse use in textile and paper industries and as a binding agent in ice-cream, jelly and cosmetics and as an explosive agent. The delegation later visited the Indo-Australian cattle breeding project and sheep breeding farm.

Breakthrough in raising rose plants

A breakthrough in raising quality rose plants has been achieved in the Landscape nursery of the Punjab Agricultural University under which a plant is now ready in 3 months instead of 15 months, it took earlier. This will proportionately reduce the labour and cost involved in growing nursery plants. Like most other useful innovations, the new technique is very simple. A plant is grown either from a seed or vegetatively i.e. from a cutting. Those grown vegetatively are more true to their type particularly when budded or grafted. For roses the general practice is to plant cutting of Eduard Rose (*desi or sucha Gulab*) in winter i.e. from mid-October to mid-March. After one year, i.e. in the following winter the plants from these cuttings become buddable. Another 6 months are required for the scion to grow. Thus it takes 15 to 24 months to raise a budded rose for supply by the nurserymen to the rose grower.

In the new technique, this process takes only 3 months. Under this technique, cuttings of Eduard rose are directly budded with the desired variety even before planting. These budded cuttings are then planted in pots filled with coarse sand. A pot with a 12 inch diameter will accommodate 50 cuttings. A number of these pots, after watering, are then put in a semi-circular hut type structure which is only a frame of steel or wooden rods covered with a polythene sheet. This near airtight construction prevents dehydration due to evaporation and provides an atmosphere for plants and the bud to flourish. There is almost a hundred per cent success in the union of buds with the cuttings and these sprout within a month the cutting taking roots simultaneously. After the scion i.e. the sprout from the bud has grown about 15 cm in the month of December, the plants can be taken out of the big pots and planted one each in small pots or polythene bags filled with soil mixed with compost. They need only a month's more nursing for the plants to get settled in pots or polythene bags after which they can be issued to the growers for planting. Apart from the very much less time required, which reduces the cost of growing plants proportionately, success of budding is nearly double in this method. Since the plants are grown in pots or polythene bags, there is no mortality. In the traditional method, a number of plants die during transfer because the roots got chopped off.

Science & Technology

Task force to formulate science policy

An inter-ministerial task force has been set up to formulate a national policy on science and technology. The first meeting of the task force was held in New Delhi under the Chairmanship of Prof. M.G.K. Menon, Secretary, Department of Science and Technology. Prof. Menon emphasised the need for formulation and adoption of a national policy of this nature. The policy will be basedon the report of the working group on science and technology for the Sixth Plan. This report has been accepted and the chapter on science and technology in the Sixth Plan is based on it. The task force will submit its report to the science advisory committee which after discussing it, will present it to the Government for approval and adoption. Prof. Menon dwelt on the need for intensive and extensive research and development by industry rather than by governmental institutions and organisations. To encourage this he said that the Government had offered incentives by way of tax cuts. He conceded that of the 650 units that have been given incentives for research and development work. Such incentives are given only to research and development activities recognised by the authorities. He said state-level science and technology departments must be set up to ensure that the policies formulated at the Centre are properly implemented.

Prof. Menon said the role of the department was essentially to maintain a proper perspective on science and technology both at home and abroad and also to correlate and co-ordinate the activities of the various organisations doing research work. He said that the Department was planning to provide a few lakh family bio-gas plants which would come to the aid of the weaker sections of society. In the case of women, for example, a list of aids that make their lives easier, like smokeless "choolahs", was being prepared.

Weaker sections who do not have the means to go in for bio-gas plants could be served by community plants, he said.

On the question of importing knowhow, Prof. Menon quoted from the working group's report:

He said that there has to be a national register of foreign collaborations. The prime contractor of any project must be Indian; there must be a firm commitment to associate appropriate Indian research and development activities with all import of knowhow and thereafter a commitment to ensure a scale of investment in research and development for the absorption of the imported knowhow and subsequently for its adaptation, improvement and conversion to new technologies.

New course in forensic sciences

The Jadavpur University is considering a plan to introduce a course in forensic sciences. A syllabus has been prepared by the Central Forensic Science Laboratory, Calcutta. Mr. Manindra Mohan Chakrabarty, Vice-Chancellor, said that the course involved the study of various subjects for which experts would be appointed. The Vice-Chancellor said that a number of factors would have to be considered before introducing the course. The demand for the course would first be ascertained and then a decision would be taken.

The Central Forensic Science Laboratory, Calcutta, has undertaken plans to modernize its laboratory. The programme includes setting up of a department of serology to study various groupings of blood, importing sophisticated equipment and strengthening of some of the existing divisions. The laboratory will acquire a high-speed camera with which more than 30,000 pictures can be taken in a second. The Government has sanctioned Rs. 7 lakhs for its purchase. The camera is needed for studying the behaviour of bullets hitting victims. The laboratory will have its own serology and pharmocology divisions. Other existing units like the ballistic and information divisions, will be strengthened. A new division of odontology to investigate crime by examining the teeth of the victims is also planned to be set up.

Department of atomic energy assistance for research projects

The Department of Atomic Energy (DAE) provides financial assistance for research projects to universities and other research institutions. The Board of Research in Nuclear Sciences (BRNS) of the Department looks after this activity. The Board is assisted by eight Advisory Committees consisting of specialists covering a broad spectrum of disciplines in the physical and chemical sciences, life sciences, materials sciences, engineering sciences, mathematics, electronics and instrumentation, isotope applications, and food and agriculture.

Projects of relevance to the R&D programme of the DAE are usually supported for about three years in all aspects of its requirements i.e. research followships, equipment and consumables.

Detailed information like general areas of interest in various disciplines, terms and conditions of grants and application forms are given in the BRNS brochure which is already available for reference with senior scientists and administrative heads of Universities, IITs and other research institutes. Information can also be obtained from Dr. Ashok Mohan, Scientific Secretary, Board of Research in Nuclear Sciences, Metallurgy Division, Bhabha Atomic Research Centre, Trombay, Bombay-400085.

Women scientists meet in Bombay

The sixth international conference of women scientists and engineers sponsored by the Indian Women Scientists' Association, was held in Bombay recently. The Prime Minister, Mrs. Indira Gandhi, inaugurated the conference. The theme of the conference was "Science, technology and society" and the sessions focussed on the role of fundamental and applied research in natural and applied sciences and to examine its technological relevance in the present environment. The other sessions of the conference were on nutrition in health and diseases, pollution, population problems, rural health and hygiene, education, advances in global medicine, agriculture, dairy development, sea-farming, space research and energy. Dr. H.N. Sethna, Dr. Raja Ramanna and Dr. M. S. Swaminathan also addressed the delegates.

News from UGC

UGC provides three crores for equipment

The University Grants Commission has sanctioned about 2 crore 96 lakh rupees as basic grant for equipment to universities under the Sixth Plan. The grant covers both State and Central Universities as well as institutions deemed to be universities.

The UGC Chairman, Dr. Madhuri Shah, has been having a series of discussions with Vice-Chancellors of the various universities to assess their immediate requirements under the Sixth Plan.

The Commission has already sent guidelines to universities for the preparation of development proposals by colleges under the Sixth Plan.

Steps to curb regional imbalances

The University Grants Commission has decided to identify and develop in an intensive manner selected colleges in districts which do not have even a single college eligible for its assistance according to the general norms.

In a circular letter to universities, the Commission has suggested that they should undertake a survey of the area in their jurisdiction to identify one or two colleges in such districts and recommend proposals for their development.

It has asked them to send the survey report along with details of the colleges identified for intensive development.

The step is part of the Commission's efforts to remove regional imbalances in higher education.

New courses in computer science at Hyderabad and Boroda

The University Grants Commission has agreed to provide funds for the computer science courses at the M.S. University of Baroda and Osmania University, Hyderabad. The former is to have a B. Tech. course and the latter an M. Tech. course in computer sciences. The UGC will give about Rs. 32 lakhs over a four-year period for these courses. Both these universities will have an intake of 30 students each anually. A similar provision for admiting 50% students from other States was made by the Commission while sanctioning an M. Tech. course for Calcutta University and a B. Tech. course for Jadavpur University in West Bengal last year.

Awards & Medals

Commonwealth awards for university teachers

The University Grants Commission has invited nominations from Vice-Chancellors for the Commonwealth Academic Staff Fellowships and Scholarships for the year 1982-83.

The awards are made by the Commonwealth Scholarship Commission in UK. They are tenable for one academic year—from October to the following July and help the awardee add to his experience by working in a similar institution in UK.

The Vice-Chancellors have been asked to nominate not more than two candidates from a University by the end of October this year to enable the University Grants Commission to make preliminary selections. The UGC's recommendations will be sent to the Commonwealth Scholarship Commission.

The fields of medicine and surgery are excluded from this scheme, as they are covered by Commonwealth Medical awards.

UGC research awards

The University Grants Commission is to award 100 post-doctoral fellowships and 50 research associateships for the year 1981-82. The Commission has invited applications for these awards, which relate to the field of sciences, including engineering and technology as well as humanities and social sciences. Research associateships will cover, in addition, the fields of Gandhian Studies and national integration.

The post-doctoral fellowships are of the value of Rs. 900/- each per month with a contingency grant of Rs 4,000 per year. They are tenable for a period of two years and are intended for research workers and teachers below the age of 45 who have obtained a doctorate and have also proved their aptitude for original and independent research work.

The research associateships, in three categories, are of the value of Rs. 1100, Rs. 1300 and Rs. 1500 each per month with a contingency grant of Rs. 4,000 annually. They are tenable initially for a period of three years.

The associateships are open to research workers and teachers. preferably below 45 with a doctorate and published research work to their credit. They should also have shown the evidence of independent research work. For the awards in Gandhian Studies, candidates should have either a Ph.D. degree or research or practical experience in the field.

Ten per cent of the post-doctoral fellowships and research associateships are reserved for candidates belonging to scheduled castes and scheduled tribes.

The Commission has also invited applications from candidates belonging to scheduled castes and scheduled tribes for 50 junior research fellowships in science, humanities and social sciences, 20 post-doctoral fellowships in sciences, including engineering and technology, besides humanities and social sciences and 20 research associateships in these areas besides Gandhian Studies and subjects of national integration. The value of and terms and conditions for the award of post-doctoral fellowships and research associateships are as given in the preceding paragraphs. All these awards are available for working at a University college or institution approved under the UGC Act. where adequate research facilities are available.

The value of the Junior Research Fellowship is Rs. 600 p.m. for the first two years and Rs. 700 p.m. for the subsequent two years (after proper assessment of work done by the fellow or after the award of M. Phil) when the fellowship will be designated as Senior Research Fellowship. The amount can be enhanced from Rs. 700/- to Rs. 800/- per month after submission of the thesis for Ph.D.

In addition, there will be a contingency grant of Rs. 3,000/- p.a.

Junior Research Fellowships are open to persons below the age of 30 years who have obtained a Masters' degree of a recognised university in the first or second division with at least 55% marks or B in the 7 point grade system or B in ten-point grade system.

Junior and Senior Research Fellowships put together are tenable for a period of 4 years extendable by another six months in special cases.

Govt awards for books

The Government of India has selected 11 books and manuscripts written in languages other than the mother-tongue, Hindi and Sanskrit for awards of Rs. 2,000 each. Five translated works have also been selected for awards of Rs. 1,000 each. The selections have been made from entries received for 1978-79 and 1979-80.

The titles and their authors are: Chiradinar Chinaki Bat (Assamese) by Mr. S. C. Sen; Prithibi Bagar Solarchhe (Assamese) by Mr. Subhodh Chandra Sen; Tootta Sambandho (Gujarati) by Mr. J. J. Relwani; Bin Sampradiyakta Ane Muslims Manas (Gujarati) by Mr. D. Y. Ahmed; Guruthu (Kannada) by Mr. Abdul Majeed Khan; Gurudev Darshana (Marathi) by Mr. R. P. Kulkarni; Bharatiya Sanskritla Bhuddhadharmace Yogadana (Marathi) by Mr. Bhagchandra Jain; Mayura Sinhasana (Oriya) by Mr. S. A. Samad Jardina; Arany Kandam (Tamil) by Mr. Ko. Ma, Kothandam; Kanyasulka Nataka Kala (Telugu) by Mr. Sirdesai Thirumela Rao, and Ghalib Aur Bengal (Urdu) by Mr. Shanti Ranjan Bhattacharya.

The translated books selected are: Narayana Bhattu (Kannada) by Mr. Raghusutha; Raj Sinha (Oriya) by Mr. S. S. Chakravarty; Anal Kaatru (Tamil) by Rupdra Thulasidas; Shree Sooktulu (Telugu) by Mr. Vidyananda, Dr. C. R. Acharya and Mr. Cheliappa Ramalinga Charya, and Sabeel (Urdu) by Mr. Badiuzzaman Khawar.

News from Abroad

Pakistan to have a Women's University

An Ordinance for the establishment of a Women's University in Pakistan is expected to be promulgated soon and the University will start functioning in October this year. Necessary funds for the University have already been allocated to the University Grants Commission. To begin with existing Home Economic Colleges at Karachi, Lahore and Peshawar will be upgraded to University Colleges. These colleges will offer a four-year composite course, at the end of which the students will be granted an M.Sc. degree in the professional subject taken as specialisation. For students, who may be forced to leave the college without completing the course, a ladderation will be provided under which the students will be eligible for a diploma at the end of each year.

The University will have a Board of Trustees at Islamabad responsible for planning and controlling the educational programmes at University Colleges with a Woman Vice-Chancellor to be appointed by the President, Chancellor of the University. Each University College will have a Board of Governors, appointed by the Board of Trustees, to be responsible for the administration and control of the college.

The Women's Division will have close links with the University with whose co-operation a research centre will be established at Islamabad. The centre will undertake inter-disciplinary studies for planning, promoting and evaluating women's education.

Some of the departments of the existing Home Economics colleges such as Food Technology and Textile Technology will be developed into institutes, and more will be added in future. In the beginning, the University will have the following institutes distributed amongst the three colleges.

Food Technology; Textile Technology, Garments; Electronics; Pharmacy; Industrial Arts and Architecture; Education; Health Studies including paramedical education and training development of mental health, nursing services, community health, nutrition; Physical Education including Bio-mechanics, Physiology and Psychology, Gymnastics, and major games/sports and Marital Arts; Business Administration; and Linguistics and Languages including training for simultaneous script writing.

The development of University Colleges will be undertaken in three phases of four years each in order to spread the expenditure over a number of years.

During the first phase, the departments of Textile, Food and Nutrition will be developed into Institute of Food Technology and an Institute of Textile Technology and Garments.

In the second phase, Institutes of Business Administration, Electronics and Pharmacy will be added to the University Colleges in Karachi, Lahore and Peshawar respectively.

During the third phase, Institute of Physical Education will be added in Karachi; Institute of Industrial Arts and Architecture and Institute of Health Studies in Lahore and Institute of Education will be added to Peshawar.

After the third phase each University College will also add an Institute of Linguistics and Languages with the purpose of producing interpreters, translators and script writers.

The expenditures during the first four years will be made from the developmental and recurring grants to be sanctioned by the government. The grants will be absolute minimum. Existing buildings will be used and minimum additional accommodation will be constructed. In the meantime, a project will be developed to facilitate the introduction of specialised institutes.

There will be a constant revision of contents, methods and organisation of studies at the different institutes of the University.

Upgrading of educational institutions in Sri Lanka

No new universities will be established in Sri Lanka until the existing ones are fully equipped, staffed and post-graduate centres set up, according to a White Paper on Education. A National Education Council which will be set up in consultation with the University Grants Commission will decide if any new University is necessary.

Admission will be regulated according to the country's requirements of academically qualified people, resulting, it is envisaged, in reduction of enrolments for certain courses. However, an increase of intake in science and science-based courses is proposed.

It proposes that universities concentrate on first degree courses and post-graduate work, creating a favourable climate for research. They will be developed into 'centres of excellence' at the apex of the educational pyramid.

The White Paper states that the phenomenal increase in enrolments resulted in a decline in academic standards. Facilities lagged behind enrolments, while the withdrawal of English, as a medium of instruction, and the paucity of research further debilitated the standards.

"University education has ceased to be an enriching experience to the majority of students. Further, the economy finds it difficult to absorb the universities' output as the demands of the expanding sectors of the economy are mostly for middle management personnel", as maintained by the White Paper.

Commencing with one university, an attempt will be made to cut across the academic barriers between arts and science students by encouraging arts students to do a science subject for their degree.

Any reduction in the numbers at the universities (owing to the regulation of admissions according to the country's requirements) will be "more than compensated for" by an expansion of the non-university tertiary education sector.

This sector includes what the White Paper describes as professional colleges which will have a status comparable to universities. These professional colleges are envisaged as providing more "flexible courses with a high degree of job relevance" than university courses. They may be set up either in the public sector or private and come under the purview of a tertiary education commission to be established soon.

They will train professionally qualified personnel for mid-management level in government and private sectors, for the industrial and creative arts, the social welfare sector and certain technical grades.

Personal

1. **Mr. P.N. Bhandari has been appointed Vice-Chancellor of the Udaipur University.**
2. **Dr. K.K. Jha has been appointed Vice-Chancellor of Rajendra Agricultural University, Patna.**
3. **Dr. S. Sahu, IAS, has taken over as the Administrator of the Sambalpur University.**
4. **Mr. J.P. Jimi has been appointed Acting Vice-Chancellor of Nagpur University.**
5. **Dr. Baijnath Sharma has taken over as the Vice-Chancellor of Bhopal University.**
6. **Mr. U.C. Ghildiyal, former Vice-Chancellor of Garhwal University, has been appointed Education Adviser to the U.P. Government.**
7. **Dr. S.N. Kishore, Vice-Chancellor of Bihar University has been awarded a cash prize of Rs. 5000/- for his outstanding contribution in the field of literature by the State Government.**
8. **Prof. Satish Dhawan has been conferred an honorary degree of doctor of science (Honoris Causa) by the Indian Institute of Technology, Madras.**
9. **Prof. M.C. Agarwal, Chief Scientist in the Soil Department of Haryana Agricultural University has been awarded a commendation medal by the Indian Society of Agricultural Engineering for his outstanding contribution in the field of soil and water management.**
10. **Thiru S. Santanagopalan has taken over as the Registrar-Incharge of the Madurai-Kamaraj University.**
11. **Mr. K.D. Thapar has been appointed Deputy Director of the National Institute of Sports, Delhi Centre.**

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Bhaduri, Somnath. Some problems of elasto-statics and elasto dynamics. University of Calcutta.

2. Bharuka, Kunjabihari Surajmal. Studies in incompressible fluid flows. Marathwada University.

3. Chanda, Amitabha. Some aspects of turbulent medium studied from statistical idea. University of Calcutta.

4. Kapoor, Narinder Mohan. A study on bases in spaces over non-Archimedean fields. University of Delhi.

5. Ramesh Kumar. Essential numerical ranges and essential spectra of Hilbert space operators. University of Delhi.

6. Sharma, Brij Kishore. Study of internal ballistics of guns and propellants. University of Rajasthan.

7. Sinha, Maheshwar Prasad. A study of operators on Banach and Hilbert spaces. Magadh University.

Physics

1. Abhyankar, Rohini Vaman. Fabrication of the CRT display terminal using TV monitor and its use in microcomputer laboratory. University of Poona.

2. Acharya, Vir Bhushan. Compton scattering of Gamma rays by K-shell electrons. Punjabi University.

3. Bhanumati, Murty, Kandikappa. Studies of photoelectric effect in some alloys in the energy region of K absorption edges. Andhra University.

4. Ghosh, Ranjan. Some studies on the basic processes in avalanching junctions and related D. C. and microwave properties. University of Calcutta.

5. Guha Madhuri. Theoretical studies on ion-neutron and ion-electron collisions. University of Calcutta.

6. Jadhav, Dattatraya Bhikaji. On the use of grating monochromators in measurements of daysky and dayglow radiations. University of Poona.

7. Masroor Hasan. Quarks in intense magnetic field. University of Delhi.

8. Misra, Jibendu Narayan. Study of enhancements in Ξ—p and E—p invariant mass distributions. University of Delhi.

9. Mittal Raj. Nuclear structure investigations in some intermediate and high Z radioactive nuclei. Punjabi University.

10. Nene, Jyoti Gangadhar. Luminescence centres in variously pretreated NaBr : Tl phosphors. M.S. University of Baroda.

11. Phadke, Shireesh Dhundiraj. Electrical properties of plasma polymerised thin films. University of Poona.

12. Sharma, Om Prakash. Electrical transport properties of zinc-annealed and indium-doped zinc selenide single crystals. University of Delhi.

13. Soni, Widwan Singh. Nonlinear propagation of laser beams in plasmas and dielectrics. Punjabi University.

14. Suresh Chand. Charge storage and transport phenomena in pure and doped polyvinylidene fluorride (PVF_2) and polyvinyl fluoride (PVDO films). University of Delhi.

Chemistry

1. Bikram Singh. Amperometric titrations with new thio compounds. Punjabi University.

2. Chandramouli, G.V.P. Aflatoxin analogues as possible anticoagulants. Kakatiya University.

3. Chandwadkar, A.J. Studies on physico-chemical properties of synthetic zeolites. University of Poona.

4. Chauhan, B.P.S. Dialkyldithiophosphate derivatives of some group IV metals. University of Rajasthan.

5. Jacob, E. Dominic. Contribution to the photochemistry of some nitrocompounds. University of Kerala.

6. Maiti, Rabindranath. Studies on the chemistry of naturally occurring polycyclic componnds. University of Calcutta.

7. Makhan Singh. Polagraphic studies in some unsaturated acids. Punjabi University.

8. Mishra, Anand Shankar. Studies on electrophilic substitution in O-substituted N-Chlorobenzanilides. Awadhesh Pratap Singh University.

9. Mishra, Bijay Kumar. Studies on nitrogen and/or sulphur containing heterocyclic compounds, substituent effect and some synthetic aspects. Sambalpur University.

10. Papa Rao, C. Syntheses and antimicrobial activity of 1—(2-Hydroxypheny 1) —3—(5—Nitro—2—Fury1)—2—Propen—1—Ones, 2—Aryl/Hetery 1—3—Nitrochromanones and chromones and 7—Aryl/Heteryl—9H (1) Benzopyrano (3, 2—b) pyrrol—9—Ones. Osmania University.

11. Prasada Rao, M. Kinetics of oxidation of organic compounds by periodate. Osmania University.

12. Rama Prasad, Alladi Venkata. New triterpenoids constituents of Terminalla Arjuna W&A. Andhra University.

13. Raveendran, G. Salt effects in the solvolysis of 1—phenyl— neopentyl methanesulphonate and its Para substituted derivatives. University of Kerala.

14. Sachar, Renu, Studies on complexes of copper (II) carboxylates with some nitrogen and oxygen donors. University of Jammu.

15. Sarkar, Gourindranath. Studies on the sorption and desorption behaviour of tri-valent complex cations on and from clay minerals resins and molecular sieves. North Bengal University.

16. Satish Kumar. Synthesis and conformational studies of sequential and random copolypeptides. University of Delhi.

17. Shrivastava, K.B.L. Kinetics of oxidation of some nitrogenous organic compounds by chromic acid. Awadhesh Pratap Singh Univerrsity.

18. Subba Rao, A. Chemistry of heterocyclic compounds containing nitrogen, oxygen and sulpher. University of Poona.

19. Venkatswamy, Gaddmidi. Chemical investigation of some Indian plants and exploratory work on the synthesis of Daunomycinone and its analogues. University of Poona.

Earth Sciences

1. Gopala Reddy, Karri. Studies on the heat budget parameters of the South Indian ocean. Andhra University.

2. Limaye, Shrikant Daji. Some aspects of integrated groundwater development. University of Poona.

3. Pishte, Jotiram Balwant. Geology of the area around Lodhikhera, Chindwara District, Madhya Pradesh. University of Poona.

4. Sanyal, Kunal. Geological causes of roof and side

fall in underground coal mines with special reference to the Jharia coalfield. Indian School of Mines, Dhanbad.

5. Siviah, Sankarasetty. Geology of Burugubanda area in the Eastern Ghats of East Godavari District. Andhra Pradesh with reference to mineralisation of graphite and Ferberite. Andhra University.

6. Tyagi, Anita. Mineralogical and geochemical changes leading to the farmation of clay deposits in Mehrauli Area, South Delhi. University of Delhi.

7. Venkata Ramana, Thota. Geo-hydrological characteristics of the ground water basins of the Khondalitiac terrain of Eastern Ghats. Andhra University.

8. Venkata Ramana Murthy, Bendapudi. Stratigraphy sedimentation and lithofacies of Gondwana sequence of Ramagundam area, Andhra Pradesh. Andhra Universiry.

Engineering & Technology

1. Khot, Annasaheb Shahu. Some studies on spillway piers. University of Poona.

2. Narayanan, S. Development and testing of catalylic converters for the reducation of no emission in spark ignition engines. University of Kerala.

BIOLOGICAL SCIENCES

Anthropology

1. Mathew, Susan. Genetics of dermal ridges : A quantitative study. Andhra University.

2. Sehajpal, Prabodh Kumar. The LH system studies on a new red blood cell membrane specificity in man. Punjabi University.

Bio-Chemistry

1. Jayakumary, N. Biochemical investigations on atherosclerosis. University of Kerala.

2. Medda, Sukumar. Investigation on thermostable α-amylase production by some bacterial isolates. University of Calcutta.

3. Sen, Anjan. Biological studies on the effects of dietary fats on hearts and in human cases. University of Calcutta.

4. Surendran, P.K. Chemical preservatives in relation to control of microbial changes in fishery products. University of Kerala.

Microbiology

1. Dandawate, Chandra Shekhar Narhar. Studies on killer Kyasanpur forest disease virus vaccine. University of Poona.

2. Deshpande, Hemant Anant. Studies on microbial conversion of manganese. University of Poona.

Marine Biology

1. Nayak, Tikka Ram. Hydrobiological studies of Dablan tal, Panna. Awadhesh Pratap Singh University.

Botany

1. Bhargava, Mrinal. Histochemical studies on seed development and seed germination in Papaver somniferum Linn. University of Delhi.

2. Bonde, S.D. Studies on the fossil flora of Chanda area. University of Poona.

3. Deore, Leelavati Tulshiram. Studies on the freshwater algae of Maharashtra. University of Poona.

4. Hari Krishna. Vascular cambium and its derivatives in Cassia fistual, Delonix regia and Mimusops elengi : (A) Structure and seasonal activity; and (B) Influence of morphactin (Chlcrflurenol). University of Delhi.

5. Kolhe, Pushpa D. Further contribution to the knowledge of plant remains from inter-trappean series of India. Nagpur University.

6. Kulkarni, Balwant Govind. Flora of South Ratnagiri. University of Poona.

7. Ramakrishnan, C. Microbial aspects of pesticide residue problems in rice soil. Utkal University.

8. Ramanandan, P.L. Nutritional studies in coconut soils and coconut palm. University of Kerala.

9. Ramesh Chandra. Studies on cultural requirements for growth and differentiation of potato tissue cultures. University of Bihar.

10. Saoji, Veena A. Chemotaxonomy of some medicinal plants of few families of Nagpur region. Nagpur University.

11. Sen, Radha. Transformation of steroid hormone by micro-organisms. University of Calcutta.

12. Sengupta, Mahuya. Studies on the bacterial association of the phyllosphere. University of Culcutta.

13. Sharma, Madhu. Embryological and mycorrhizal investigations in some members of Orchidaceae. Panjab University.

14. Shukla, V.D. Studies on the epidemiology of rice tungro virus disease. Utkal University.

15. Sundara Murty, P. Syama. Studies on the physiological aspects of spikelet sterility in rice, Oryza sativa L. Utkal University.

16. Tripathy, Baishnab Charan. Effect of some selected heavy metals ions on a structure and function of isolated chloroplasts. Jawaharlal Nehru University.

17. Yadav, B.R. Dayakar. Studies into some fungal diseases of ornamental plants from Maharashtra. University of Poona.

Zoology

1. Chandra Sekhar Reddy, M. Studies on avian plasmodium and some metabolic changes in their hosts due to infection. Kakatiya University.

2. Dittakavi, Revati. Studies on the use of certain uvenoids in control of cotton strainer, Dysdercus koenigii (F) (Pyrrhocoridae : Heteroptera). Osmania University.

3. Gupta, Mohan Lal. A comparative study on the radioresponse of liver in vertebrates. University of Rajasthan.

4. Jayaprakash, A. Pathogenesis and population dynamics of the cyst nematode, Heterodera oryzicola n.s.p. in rice and rice soils. Utkal University.

5. Mishra, Charu Chandra. Ecology of nematodes in some tropical crop fields and pasture soils of Sambalpur, Orissa. Sambalpur University.

6. Padhy, Surendra Nath. Some aspects of ascorbic acid metabolism in the kidney of male garden lizard. Berhampur University.

7. Ram Kumar. Studies of the mite (Acarina) fauna of human habitation of Punjab and Himachal Pradesh. Punjabi University.

8. Rangaraju, Vasantha. Studies on the acanthocephala of India. Nagpur University.

9. Rupavathy, Potnuru. Studies on the intertidal pelecypod. Barbatia obliquata (Gray) or Waltair coast. Andhra University.

10. Sethi, Karuna. Biology and post-embryonic development of Earias vittella (Fabr) (Lepidoptera : Arctiidae) Punjabi University.

Medical Sciences

1. Mistry, Kishorekumar Purushottamdas. Biochemical changes occurring in amniotic fluid during different gestational periods. M.S. University of Baroda.

Agriculture

1. Kamala Rani. Control of cellulose hydrolysis by fungi. Haryana Agricultural University.

2. Sreekumaran, T. Pathobiology of the neoplasm involving the paranasal sinuses in bovines. Kerala Agricultural University.

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Advertisement No. 4 of 1981

Applications on prescribed form are invited from Indian Citizens for filling up the following teaching and non-teaching posts and for preparation of panel :

1. **University Professor** : (a) Two posts for Department of (i) Mathematics and one each in (ii) Hindi (iii) History (iv) Political Science (v) Economics (Posts permanent).

(b) Two posts for the Department Geology (i) one with the Specialisation in Coal Geology or Sedimentology and (ii) the other open. (Posts permanent).

2. **Reader** : (a) Two in Anthropology —one with the specialisation in 'Urbanisation and Industrialisation' and the other with the specialisation in 'Methodology Macroanalysis and Quantification Methods'. Posts temporary but likely to continue.

(b) One in Sociology (for the Deptt. of Anthropology) with specialisation in functional/Structural and Systems Analysis. (Post temporary but likely to continue).

(c) One post each in (i) Geology (ii) History (iii) Political Science (iv) Commerce (v) Mathematics and two each in (vi) Hindi and (vii) Economics. (Posts permanent).

3. **Lecturers** : in (i) Music (ii) Home Sctence and (iii) Oriya.

4. **Deputy Registrar** : One post (Reserved for S.C./S.T. candidates). Post permanent.

Pay Scales

1. University Professors : Rs. 1500-60-1800-100-2000-125-2500/-.

2. **Readers** : Rs. 1200-50-1300-60-1900/-.

3. **Lecturers** : Rs. 700-40-1100-50-1600/-.

4. **Deputy Registrar** (Reserved for S.T./S.C.) : Rs. 510-25-610-30-670-EB-30-910-EB-35-1155/-.

All the posts carry usual benefits as per rules of the University.

Essential minimum qualifications

1. **University Professor** : Teacher of repute possessing high academic qualifications, who has already distinguished himself in the subject concerned by his research and published work of high standard and who possesses a dactorate degree and has atleast ten years post-graduate teaching experience and also considerably experience of successful guidance of research work.

2. **Readers** : (a) A first or high second class Master's degree or equivalent degree of a foreign university in the subject concerned with confidently good academic record followed by a doctor's degree and, (b) atleast 5 years teaching experience in post-graduate classes or 7 years teaching experience in Honours and post-graduate classes taken together or 12 years teaching experience in degree classes.

Note : The condition of having 52.5% marks (High second class) may be relaxed in case of teachers appoint-in Ranchi University Service prior to 1-7-77.

3. **Lecturers** : (a) **Music** : Degree or Diploma in Hindustani/Karnatak/Western (Vocal or Instrument) Music or a recognised Institute of Repute.

Desirable (a) Bachelor's degree in any faculty (b) Experience of giving recital of radio or Music conference (c) Teaching experience and (d) Knowledge of Hindi.

(b) **In Home Science** : At least a Second Class Master's degree in Home Science or an M.B.B.S. Degree or a Master's degree in an allied subject a (1) a degree or diploma in Home Science of a recognised University or (2) a Bachelor's degree with Home Science or Domestic Science as an optional subject with two years teaching experience in a College.

(c) **In Oriya** : A first or high second class Master's degree followed by a Ph.D. or M. Phil degree.

Note : In case candidates with Ph.D. or M.Phil. are not available, candidates with atleast High Second class may be given preference.

4. **Deputy Registrar** : **Reserved for S.T./S.C. candidates** : At least a second class Master's degree of the University or an equivalent qualification and not less than five years experience either of teaching in a University or a College or of University administration or shall possess a Bachelor's degree with atleast seven year's experience of office administration. The post is reserved for S.T./S.C. candidates.

Those, who had applied for the posts of lecturer in Music and Home Science in response to Advertisement No. 1/80, need not apply again.

In case of appointment to the posts of lecturers, reservation will be made for S.C./S.T., B.C. I and II and Economically Backward as per rules of the University.

Application forms can be had, free of cost from the University office in person, or by post by sending a self addressed envelope (23 x 10 cms. with postage stamp worth 0.50 Paise affixed thereon with the words "Application form for teaching (or non-teaching) posts in Ranchi University" superscribed on it to the Deputy Registrar (II) of the University. In case, the candidates are not able to get the prescribed application fram they can apply even on plain paper mentioning all details, as an advance copy.

Applications, complete in all respects, on prescribed forms, alongwith required enclosures and a fee of Rs. 10/- (for S.C./S.T. Rs. 2/-) only, in the shape of crossed postal order payable to the Registrar, Ranchi University at Ranchi G.P.O., should reach the undersigned positively by **October 15, 1981 till 4 PM**. Applicants already in employment should send their applications through proper channel. Incomplete applications will be rejected outright.

No T.A. or D.A. will be paid for appearing at the Interview or for joining the post, if selected.

Canvassing in any form will be treated as disqualification.

D.P. Varma
REGISTRAR

HARYANA AGRICULTURAL UNIVERSITY

Advertisement No. 4/81

Applications invited for following posts. Higher start outstanding qualifications, experience and achievements. Benefits of Contributory Provident Fund and leave etc. according to University Rules. Applications of the candidates already in service must reach through proper channel upto the fixed date. Applications on prescribed form (obtainable free by sending self-addressed unstamped envelope size 23×10 cm. to Assistant Registrar(R), H.A.U., Hissar) accompanied by prescribed fee of Rs. 10/- in the form of crossed Postal Order in the name of Assistant Registrar(R), HAU, Hissar payable at HAU Post Office Hissar, should reach Registrar by **26.9.1981**. The applicants must possess prescribed qualifications and experience on the last date for receipt of applications. The envelope containing application must be supperscribed as "Application Form for the Post of———————".

1. **Dean College of Sports**: (One): Essential: i) Atleast second class B.A./B.Sc./B.P.Ed. followed by atleast second class Master's degree in Paysical Education. ii)A doctorate degree in Physical Education. iii) Experience of teaching degree classes for atleast 10 years. iv) Administrative experience as Principal/Vice-Principal/Senior Faculty Member in College of Physical Education or in any senior position in an Institution of higher education or Head of a Teaching Department of Physical Education of a University. Desirable i) Research publications. ii) Experience in competitive sports participation at the College/University/State level.

2. **Professor or Eminence in Agril. Economics (Sir Chhotu Ram Chair)**: (one): Eminent Scientist of National and International repute with distinguished and productive record of work in the discipline.

Pay Scales

Sr. No. of post	Pay scale	Total emoluments at the initial of the pay scale (exclusive of Hous Rent).
1.	Rs. 1500-60-1800-100-2000-125/2-2500.	Rs. 2110/-
2.	Rs. 3000/- plus allowances	Rs. 3450/-

Note: For post at Sr. No. 1, One or more of the essential qualifications relaxable for candidates with outstanding attainments/experience.

REGISTRAR

PANJAB UNIVERSITY CHANDIGARH

Advertisement No. 8/1981

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh, alongwith postal orders of **Rs. 10/- by 26.9.1981.** Fourteen days extra time is permissible to persons who have to submit their applications from abroad:

1. **Professors:** (Rs. 1500-60-1800-100-2000-125/2-2500). (Economics-1; Physical Education-1; Function Theory, Number Theory, Modular Forms, Algebra, Geometry and related subjects-1 (Deptt. of Mathematics); Analysis-1 (Centre for Advanced Study in Mathematics).
2. **Professors/Readers (5 posts) (Centre for Advanced Study in Mathematics).** Numerical Analysis-1; Function Theory, Number Theory, Modular Forms, Algebra, Geometry and related subjects-4.
3. **Readers:** (Rs. 1200-50-1300-60-1900). (Applied Mathematics-1 (Department of Mathematics); Pure Mathematics-1 (Centre for Advanced Study in Maths.); English-2 (Temporary but likely to be permanent); Public Administration-1; Sanskrit-2; Sociology-1; French-1; German-1; Law-1 (Temporary-leave vacancy); Labour Law-1; Urdu-1; Statistics-1 (Temporary-leave vacancy); Sanskrit-2 (Teaching-1, Research-1) (V.V.B.I.S. & I.S., Hoshiarpur); English-1; Economics-1 (P.U. Evening College) Commerce & Business Management-1 (Temporary-leave vacancy).
4. **Lecturers:** (Rs. 700-40-1100-50-1600). (English-1; Economics-2 (Permanent-1, Temporary but likely to be permanent-1); Ancient Indian History, Culture & Archaeology-1 (Temporary but likely to be permanent); French-1; Philosophy-1 (Temporary but likely to be permanent); Physical Education-1 (Temporary but likely to be permanent); Political Science-1 (Temporary but likely to be permanent); Psychology-2; Sanskrit (Research-1) (V.V.B.I S. & I.S., Hoshiarpur); Mass Communication-1 (Temporary); Law-1 Temporary-leave vacancy).
5. **Lecturers:** (Rs. 700-40-1100-50-1600). **(P.U. Evening College, Chandigarh)** (English-1; Economics-2; Public Administration-1).
6. **Research Associate-1** (Deptt. of Sociology). Category A : Rs. 1100/- p.m. (fixed). Category B : Rs. 1300/- p m. (fixed). Category C : Rs. 1500/- p.m. (fixed).
7. **Research Assistants:** (Rs. 550-20-650-25-750). (Statistics-1; Sanskrit-2 (V.V.B.I.S. & I.S., Hoshiarpur), Commerce & Business Management-3).
8. **Instructors:** (Rs. 500-20-700-25-900). **(Deptt. of Music : Hobby Classes).** (Vocal-1; Instrumental-1; Dance-1).
9. **Senior Research Fellows** (Rs. 900/- p.m. (fixed). (Mathematics-1; Sociology-2).
10. **Research Fellows:** (Rs. 700/- p.m. (fixed). (Mathematics-1; Statistics-1).
11. **Junior Research Fellows:** Rs. 600/- p.m. (fixed). (Mathematics-6, Sociology-4).
12. **Research Scholars** : Rs. 600/- p.m. (fixed). (Mathematics-2; Statistics-1; Library Science-1; Ancient Indian History, Culture & Archaeology-1; Fine Arts-1; Hindi-1; History-1; Law-1: Punjabi-1; Philosophy-2; Public Administration-1; Sanskrit-2).
13. **Research Fellows** : Rs. 600/- p.m. (fixed). (Bhai Vir Singh Studies in Modern Literature-1; Dayanand Chair for Vedic Studies-2).

10% of the scholarships/fellowships will be reserved for Scheduled Castes and Scheduled Tribes candidates, provided they fulfil the minimum qualifications laid down for the award of such fellowships. In case qualified candidates are not available, reserved scholarships/lowships will be treated as unreserved.

For Details See Instructions for Candidates Enclosed with the Application Form.

Candidates for the posts of Professors and Readers who do not possess a doctoral degree are required to submit 10 typed/cyclostyled copies of brief resume of their published work.

15% posts of Lecturers will be reserved for the members of the scheduled castes and 2% for the members of the Scheduled Tribes, but these will be filled up by others if no suitable Scheduled Castes/Scheduled Tribes applicant is available.

Persons already in service should route their applications through proper channel. Incomplete forms and those received after the due date will not be entertained. Attested copies of Certificates in support of qualifications for Matriculation/School leaving, Graduation as also post-graduate examinations be attached to the application. Serving employees may, however, send their applications on the prescribed proforma, direct to the University. They may route another copy through their Departments. They will be allowed to present themselves for interview only on the production of 'No Objection Certificate' from their employers. Canvassing in any form will disqualify the candidate.

Application forms alongwith detailed qualifications can be obtained from the Cashier, Panjab University, Chandigarh, personally on payment of Rs. 2/- or by making a written request to the Finance & Development Officer, Panjab University accompanied by self-addressed, stamped envelope of 23—10 cms. and postal order for Rs. 2/- drawn in favour of the Registrar, Panjab University, Chandigarh.

THE UNIVERSITY OF BURDWAN

RAJBATI : BURDWAN
WEST BENGAL

Advertisement No. 4/81-82
Dated, 3rd September, 1981

Applications in the prescribed form are invited for the following posts of Lecturer in the approved scale of pay of Rs. 700-400-1100-50-1600/- plus dearness and other allowances, pensionary benefits according to the rules of the University.

A. **Department of Geography**
Lecturer ... One post

B. **Department of Library Science**
Lecturer ... One post

C. **Institute of Science Education University of Burdwan**
Lecturer in
Life Science ... One post
(Botany) (lien bound but likely to be permanent)

Minimum qualifications

1. (a) A Doctor's Degree or published research work of an equally high standard and

(b) Consistently good academic record with first or high second class (B in the seven point scale) Master's Degree in the relevant subjects or an equivalent degree of a foreign University.

Desirable qualification : Specialisation or Proficiency

For A : **Specialisation in Quantitative Geography** : Candidate must have a special knowledge of Statistical Technique as is required for the study of Quantitative Geography.

For B : Any branch of the subject.

For C : B.Ed. degree having Life Science/Biology as method paper. Teaching experience at undergraduate level.

The University Council, may on recommendation of the appropriate Selection Committee, waive any of the requirements in view of the candidates specialised knowledge in the subject. The choice of the Committee may not necessarily be confined to those who apply formally.

For application form and other information apply to the Registrar with self-addressed stamped (0.50p.) envelope (9" x 4").

Last date for admission of applications with the requisite fee of **Rs. 5/-** is **24 September, 1981.**

A.K. Chaudhuri
REGISTRAR

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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH OCTOBER 1, 1981

Food Science & Technology Information
14 OCT 1981
C.F.T.R.I. MYSORE

Prof. Ram Joshi, Vice-Chancellor, University of Bombay, delivering the John F. Kennedy Memorial Lecture at the Indo-American Society in Bombay

ASSOCIATION OF INDIAN UNIVERSITIES PUBLICATION

CLASSIFIED ADVERTISEMENTS

OSMANIA UNIVERSITY
HYDERABAD-500007 (A.P.)
Advertisement No. 7/81

Applications in the prescribed form together with the registration fee of Rs. 5/- through M.O./I.P.O./Challan 'A' are invited for the following posts in the University Service so as to reach the undersigned on or cefore **5-10-81**:

1. **Lecturer in Botany** . . Rs.700-1600
2. **Lecturer in Zoology** . . Rs.700-1600

QUALIFICATIONS

Post No. 1 and 2

(i) Consistently good academic record with first or high second class Master's Degree with 55% (B+) marks in a relevant subject or an equivalent degree of an foreign Univ.

(ii) A Doctor's Degree or research work of an equally high standard.

Age

Not above (35) years.

14%, 4% and 25% reservations are made for Scheduled Castes, Scheduled Tribes and Backward Classes respectively.

Application forms can be had from the Director, University Press, O.U., Hyderabad, on payment of **Rs. 4.50** in person or M.O. or by I.P.O. UNCROSSED made payable to the Director, and by sending a self-addressad envelope (11½ X 26½ cms.) duly stamped or ordinary or registered post.

B. Ramachandra Reddy
REGISTRAR

PUNJABI UNIVERSITY
PATIALA
Advertisement No. 25/SPS/PRO/Estt./81

Applications are invited for the following posts :

1. **EXECUTIVE ENGINEER (ONE)**
Grade Rs. 1400-60-1700/75-2000/100-2100
QUALIFICATIONS
At least a degree in Civil Engineering from a recognised University or equivalent qualifications like associate membership of Institution of Engineers; India etc., with at least 8 years experience as Sub-Divisional Officer/Assistant Engineer in a Govt./University/Semi-Govt. Department. Retired Executive Engineer/Superintending Engineer or Civil Engineer (M.E.S.) below the age of 63 years may also apply. Salary and other terms of service will be fixed taking into account the qualifications and experience of applicant.
Only those persons need apply who have handled the execution of works of big building projects designed by Architects, involving R.C.C. Construction. Experience in design, construction and maintenance of Sanitary fittings in buildings is desirable.
Qualifications and experience are relaxable in case of the candidate, otherwise found suitable by the Selection Committee.

2. **JUNIOR RESEARCH FELLOW (U.G.C.) ; (ONE)**
DEPARTMENT OF BOTANY
@Rs. 600/- p.m. (all inclusive)
QUALIFICATIONS
Junior Fellowship is open to persons perferably below the age of 30 years, who have obtained a Master's degree of a recognised University in the first or high second division (with at least 55% marks or B in the seven point grade system).

3. **RESEARCH SCHOLAR IN BOTANY (ONE)**
(Tenable for two years in the first instance @ Rs. 400/- p.m. all inclusive)
QUALIFICATIONS
Candidates should possess at least second class Master's degree with at least one year teaching/research experience after obtaining Master's degree provided that the condition of experience may be relaxed in the case of first class M.Sc. provided further that a candidate with at least 55% marks both in B. Sc. and M. Sc. could be considered in case no first class M. Sc. is available.

GENERAL

Higher start within the grade admissible depending upon the ability and experience of the candidate. House rent and Dearness Allowance, Provident Fund and Medical facilities according to the University rules.

Applications complete in all respects on the prescribed form accompanied by a crossed Postal Order worth Rs. 5/- (Rs. 2/- for candidates belonging to Scheduled Caste/Tribes and Backward Classes) drawn in favour of the Registrar, Punjabi University, Patiala, should reach the University by **12-10-81**. The forms can be had from the Production and Sales Officer, Publication Bureau, Punjabi University, Patiala, on payment of **Re. 1/-** by sending a crossed Indian Postal Order drawn in favour of the Registrar, Punjabi University, Patiala, alongwith a self addressed envelope of the size of 25 x 10 cms. stamped with 35 paise postage which should be superscribed at the Top in bold letters REQUEST FOR APPLICATION FORM FOR THE POST OF———

Persons already in service should apply through proper channel. Government Servants who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before the due date and regular applications through proper channel by **15-10-81**.

REGISTRAR

OSMANIA UNIVERSITY
HYDERABAD-500007
Advertisement No. 8/81

Applications in the prescribed form together with the registration fee of **Rs. 5/-** through M.O./I.P.O./Challan 'A' are invited for the post of LECTURER IN GEOLOGY (Rs. 700-1600) in the University Service so as to reach the undersigned on or before **12-10-81**

Qualifications

(i) Consistently good academic record with first or high second class Master's Degree with 55% (B+) marks in a relevant subject or an equivalent degree of an foreign University.

(ii) A Doctor's Degree or research work of an equally high standard.

Age

Not above (35) years.

14%, 4% and 25% reservations are made for Scheduled Castes, Scheduled Tribes and Backward Classes respectively.

Application forms can be had from the Director, University Press, O.U., Hyderabad, on payment of **Rs 4.50** in person or M.O. or by I.P.O. UNCROSSED made payable to the Director, and by sending a self-addressed envelope (11½×26cms) duly stamped or ordinary or registered post.

The candidates who have applied in response to the **Advt. No. 8/79** need not apply again.

B. Ramachandra Reddy
REGISTRAR

GURUKULA KANGRI VISHWAVIDYALAYA
HARDWAR

Applications in duplicate on plain paper with copies of testimonials, are invited (from male candidates) for following posts, so as to reach the undersigned by name along with postal order for **Rs. 10/-** by **20th Oct. 1981.** Those who applied previously need not apply again.

1. **Readers**–Zoology and Philosophy:
(Grade: Rs. 1200-50-1300-60-1900)
   - (a) First or high second class Master's degree of an Indian University or equivalent qualification of Foreign University.
   - (b) Research Degree of Doctoral Standard.
   - (c) Five years experience of teaching preferably Post graduate classes. In case of Reader in Philosophy preference will be given to candidates having specialization in Vedic Philosophy and having knowledge of Sanskrit language.
2. **Lecturers— Physics and English:**
(Grade: 700-40-1100-50-1600).
   - (a) Master's Degree of an Indian/Foreign University with more than 54% marks and an average of 55% in Intermediate and Degree or 55% marks in each of these examinations.
   - (b) Doctoral Degree or Research work of a high Standard.
   - (c) Candidates having two years teaching experience shall be preferred.
Qualification relaxable at the discretion of the selection committee.

Dharam Pal Hira
REGISTRAR

UNIVERSITY NEWS

VOL. XIX No. 19
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Editor : ANJNI KUMAR

Information Service

Higher Education in the U.S. and India

Ram Joshi*

Introductory

When one speaks about higher education in the U.S. and India, one is talking about two national systems which share some important traditions and many common beliefs which have shaped the institutions of higher education in the two countries. Historically, both systems have been an outgrowth of a colonial past, one having succeeded more than the other in remoulding the colonial model into a more indigenous system in its place. Both systems are more or less committed to the ideal of mass education and have thrown open their doors to an ever expanding circle of men and women. Here again, the success of one is spectacular but that of the other is not insignificant. Both systems operate in an open, competitive and liberal democratic political climate and are greatly influenced by it. However, in the case of one the influence of the system on the politics of the country is far more pronounced than in the other. Many of the larger issues facing higher education are similar in the two systems, like issues concerning numbers, resources, relevance and rationale of higher education, although their responses are not always similar. Therefore, it would be interesting and useful to study in a comparative perspective some of these larger issues for a better comprehension of the working of the two systems.

The dimensions

In 1978-79 the U.S. had about 11 million college and university students, with 8.3 million enrolled on full-time basis. That represents about 53.61 per cent of persons in the age group of 18 to 24. About 60 per cent were men and 40 per cent women. 78.4 per cent of students studied in public institutions and 21.6 per cent in private institutions not primarily supported by Federal or State Governments. In 1978-79 there were in all 3125 institutions of higher education of which 1660 were private institutions and the rest public supported institutions. It is interesting to note that while the majority of the institutions of higher education are private, the majority of students attend public institutions.

Steady expansion was the principal characteristic of American higher education in the 50s and 60s. In the decade of the 1950s student enrolment increased by nearly 60 per cent, from 2.2 million students to 3.5 million and in the decade of 1960s it more than doubled and became 8 million in 1970. The decade of the 70s was expected to witness a decline in student enrolment and many of the fears as well as the hopes of educationists in the United States were based on this prediction. However, as the figures

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**Vice-Chancellor, University of Bombay.*

for 1978-79 indicate the predictions about fall in enrolment have not come true although the decadal growth rate has been slow and of the order of 24.3 per cent. As many as 59 per cent of institutions have gained in student enrolment. Only 29 per cent have lost enrolment and the remainder have stayed more or less even. Of course, the distribution of this rise in enrolment has not been uniformly distributed between public and private or between smaller and larger institutions. 68 per cent of public institutions gained and 21 per cent lost enrolment. While in the case of private institutions, 48 per cent gained and 39 per cent lost.

The predictions regarding fall in student enrolment for the decade of 70s were based on the following factors:

(a) Student unrest at the beginning of the decade that shattered confidence of campuses and support in the community;

(b) The decline of the male participation rates with the end of military draft;

(c) The impact on the labour market of the new outpouring of college graduates, coincident with recurring recessions; and

(d) The deep recession and spectacular rise in oil price in 1974-75 that sent many colleges in financial deficits.

The predictions turned out to be somewhat wrong because they did not take into account the possibility of students of higher age group joining colleges and universities and they also underestimated the sustained financial assistance made available especially by the States.

In India the sector of higher education has expanded steadily to become a very significant public enterprise in the country. In a matter of thirty years student enrolments have gone up from 1.74 lakhs to over 3 million; the number of universities has gone up from 28 to 120 including deemed ones and the number of colleges from 695 to 4558. This represents a spectacular growth in numbers—an increase of approximately 15 times in enrolment, 4.3 times in the number of universities and 6.5 times in the number of colleges. The present infrastructure of higher education has thus grown from a scratch and by any yard-stick India's investment in human resources has been quite considerable. However, inspite of this spectacular expansion and the massive investments, India with a percentage of 4.5 of the college age—cohort lies way behind all the advanced and even some of the developing countries of the world. For example, in the developed world the relevant percentage is as follows :

U.S.A.	53.61
Japan	24.69
G.D.R.	24.50
F.R.G.	20.26
U.S.S.R.	21.74
France	18.04
Israel	23.54

In some of the developing countries the percentage is :

Argentina	23.79
Panama	17.23
Chile	16.48
Egypt	12.46
Cuba	9.28
Mexico	8.97
Brazil	9.79
Iraq	8.47
Korea	9.8
India	4.5

India can hope to reach the level of approximately 20 per cent of the age-cohort not earlier than the close of the present century. This too would depend upon a crash programme being undertaken for higher education but this would require additional investment of a massive order which India cannot afford at the present moment. Even with the existing rate of growth, India is bedewilled by a number of problems like the brain-drain, educated unemployment, decline in the relative wages of educated persons and so on.

There is a basic difference here about the place of higher education in national life between developed countries and developing ones. For the developed countries education is consumption good while for a country like India it is essentially an investment yielding comparatively high private and social returns. While trying to ensure that education is fully responsive to social demands and developmental needs, education is one sector which can ill-afford to overproduce.

Financing higher education

Perhaps a major public policy issue in American higher education at present concerns costs and resources—that is, who is going to pay for higher education and how much? Higher education is now enormously expensive and costs continue to rise. At the beginning of the decade of 1970 the expenditure for higher education in the U.S. was 31 billion dollars or about 3400 dollars per student. In the last ten years, it has risen by at least 30 to 35 per cent. In 1945 America devoted only 0.5 per cent of its gross national product to higher education. Now that figure is more than 3 per cent. In India the expenditure on higher education was 0.2 per cent in 1950-51. It increased to 0.6 per cent in 1960-61 but declined to 0.5 per cent in 1978-79. Similarly the expenditure on higher education as a proportion of the total expenditure on all types of education increased from 15.8 per cent in 1950-51 to 20.3 per cent in 1965-66 but declined to 15.3 per cent in 1978-79. The net result is that higher education in India is operating on a shoe-stringe budget and if the rate of growth of enrolment is accelerated without commensurate increase in the level of expenditure, this would only go to cut the infrastructure in the universities and colleges to the very bones.

Although higher education is very expensive in the United States, the Federal and State Governments have been continuing to assist higher education in a big way and the role of the State Governments is particularly noteworthy. Expenditure on instructional costs per student at constant prices have remained steady at 28 per cent over the past ten years. The share of the Federal Government has dropped from 23 to 16 per cent with the exception of student aid which has gone up from 3% in 1960 to 13% in 1978 while the share of the State Government has increased from 37 to 42 per cent.

The current profile of higher education in the U.S. is characterised by the following :

(1) Increasing concentration of students in public institutions (78.4%);

(2) More and more dependence on public sources of finance (63%);

(3) More and more regulation by Government agencies;

(4) Heavy concentration of students on large campuses of traditional form because most large institutions are public and therefore have lower tuition fees;

(5) Lowering of public confidence in higher education due to the student rebellion of the 60s and increasing instances of lack of integrity on campuses like Grade Inflation, lowering of enrolment standards, cheating and default of student loans, etc.;

(6) An aging faculty; model age 36—45 in 1980. It will be 56-65 in 2000 A.D., senior faculty means higher costs, less resilience in making adjustments, further removed from student age also means greater institutional loyalty;

(7) The system is more on the defensive as seen from :

   (a) The lowering of admissions requirements;

   (b) Search for non-traditional students who were not preferred in the past;

   (c) Increased emphasis on retention of students, sometimes regardless of their performances;

   (d) Rising level of grades to attract and retain students;

   (e) The turn toward vocational subjects following student demand;

   (f) Increased reliance on collection bargaining by faculty and students, thus pushing administration on defensive;

(8) A new generation of students—lower levels of aptitude, test scores on entrance have declined by 11% in verbal and by 9% in quantitative tests, students concentrating more on vocational and professional courses thus leading to the neglect of Humanities and Fine Arts, political activism virtually dead, students less interested in academic reforms and more interested in trade union type action to prevent rise in tuition fees or to demand more facilities and aid, students less hopeful about the future and also less respectful about rules and authority.

We have so far touched upon two major issues of numbers and finances. The root causes of the increase in numbers are to be found in the requirements of modern technological society. The need for trained or even semi-trained man-power is increasing. In America entry into college or university has been traditionally regarded as the surest means of upward social mobility. In India this factor is even stronger given the hierarchical nature of social stratification. While in America increasing uncertainty about jobs turns students away from liberal education to vocational education in a two or four year college, in India growing uncertainty about employment has the paradoxical effect of increasing the rush of students because the few available jobs would almost certainly go to those with a college degree. As far as the issue of finance is concerned, the consequences are not difficult to discover. The first is an enormous increase in the use of public funds. Another is an increase in public control of academic institutions raising problems about the autonomy of individual institutions and of the whole educational system.

Access to higher education

The issue of equal opportunity and of widening access to higher education is a very complex issue both in the U.S. and in India. The issue is strongly affected by the rising costs of higher education. The last twenty years have seen enormous progress in American higher education under the heading "Equal Opportunity" and "Affiirmative Action Programme". The achievements have resulted largely from laws guaranteeing the rights of minority, students, low income groups, women and other ethnic groups which had been previously discriminated against. Still, black students are not as yet represented in higher education in proportion to their number in the population. But their numbers have rapidly increased. The same has happened to women's education. In India, first generation learners have only recently entered the field of higher education and find themselves totally at a loss in the new environment. In both countries, the debate concerning open versus selective admissions is hotly discussed. The issue is quite complex since it involves considerations of social justice on the one hand and academic standards on the other. Both countries represent plural societies which have denied access to education to some segments of their population and now feel compelled to provide access to these groups. Both systems have followed an open admissions policy in some measure or another. In India the problem is still more complicated. There has been in reality a dual system in operation in Indian higher education. While some sectors of higher education have always operated on the basis of open door admission, a policy of selective admissions is followed in other sectors. For example, admissions to institutions of engineering, medicine and technology have always been highly selective. So are admissions to good institutions in all sectors of higher education. This has resulted in the opening of a large number of poor institutions to provide admission to the new groups of admission seekers and thus retaining the elitist selectivity of good institutions in the more prestigious sectors. For various reasons into which one need not go, this dualism in Indian education will have to continue in some form. Within the scarce available resources, India seems to have only two options (1) to organise a fairly compact system of higher education which maintains proper standards and is adequately oriented to the employment opportunities available. Such a system will necessarily be highly selective and therefore socially and politically unacceptable. The second alternative would be to continue the present dual system but improve it considerably by introducing a much greater element of social justice.

Pursuit of equality and concern for standards

(1) One of the large themes of the dynamics of society in the world especially western world for the last 300 years or so, and more particularly of the last 100 years has been the Quest for Human Equality.

(2) This quest is being pursued with greater and greater force and to-day it is universally accepted as a legitimate demand, although in practice it is still resisted in many societies.

(3) The movement for equality is in some sense an integral part of the larger movement for economic development, modernisation and the scientific and technological revolution.

(4) Therefore the movement for equality permeates all areas of social life and activity, such as political, economic, educational and cultural.

(5) When we examine the relationship between equality and education, more particularly the University, we find that the University has been both in the vanguard and at the rear of this movement for greater equality. For example, the medieval University was perhaps more egalitarian than the society of that time. Today, on the other hand, in many societies, Universities not only take a back seat in the drive towards equality as compared to the contemporary society, but sometime universities function as bastions of inquality, both in terms of those whom they admit and the content of what they transmit.

(6) Coming to the situation in Indian Universities, one finds that while universities in India are not 'Indian' in many ways, they are very Indian when it comes to this question of the pursuit of Equality. They share with the Indian society its hierarchical and in egalitarian characteristics.

(7) In fact, one can say that at least some roots of the crisis of credibility of Indian Universities lie in this fact.

(8) The question of Equality in the context of a University has many facets but I shall refer to only one or two.

(9) Equality in the context of University Education signifies university i.e. extension of equal opportunity to all. The desirability of the principle of universal access is readily accepted at the primary stage of education but doubts and reservations appear as we move up to the secondary and the university stage.

(10) Now, why these doubts and reservations? There could be two reasons, one economic and the other social. In economic terms, it is mainly a problem of resources, but educationally, it is a more complex problem and the complexity increases at each higher stage of education. At the primary stage, it may be a problem of retention of the child enrolled in school, at the secondary, it may be the problem of diversification and vocationalisation. At the University stage, it is a question of standards and question of excellence.

(11) Free access to higher education is often opposed on the ground that "every one is not suited for higher education". The presumption underlying this approach is that there is nothing wrong with the education as we impart it, but there is something wrong with the person who wants to enter the university and desires to receive that education. Now this approach leads to the neglect of the need to examine the suitability and adequacy of the present education.

(12) Solution lies not in denying or controlling access to higher education but in undertaking remedial action in response to the needs of the students. Selective admissions will only amount to perpetuation of privilege and presentation of the *status quo*. Therefore open door admissions followed by appropriate remedial programme to help students from the weaker sections and the first generation learners to enable them to stay on in the system and to complete education within the prescribed time.

(13) Also, it should be borne in mind that growth in numbers is conducive to an improvement in quality, upto a point and should therefore be welcome.

Relevance of education

The question of relevance of courses offered in higher education is yet another major issue confronting universities both in the U.S. and India, as it does in practically all countries of the world. This problem can be roughly divided into two categories. First is the relevance of general subject matter, i.e. a better balance of humanities, social science and natural sciences than most universities have provided or are even now prepare to provide. A second problem is the applicability of the education received. An educational system may offer a more balanced set of courses in the three large disciplines mentioned above but may still offer them at a level that students find inapplicable to their real life experiences.

Obviously the less developed the country, the more pressing are the demands for applicable knowledge. Understandably therefore the issue of relevant education is more debated in India than in the United States. But the problem of applied versus basic or relevant versus traditional studies is not an easy one to resolve. It has been the experience of educationists that applied studies do not flourish

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Technology in India

K. C. Lalwani*

In the West, science as a dominant factor in determining the beliefs of man has existed for more than 300 years; as a source of economic technique, it has existed for about 200 years. In India, both science and technology have been imported. Science came more than a century ago as a part of English education; technology came much later. Both have yet to strike a firm root.

In Europe, the quest for science was started by a small group, but it began to play an important part in the life of the people after the Industrial Revolution. Despite the denunciation of machine by Carlyle and Ruskin, the major sociological incentive for the phenomenal growth of science and technology in the West has been the urge of the Western man to live in reasonable affluence.

Besides, as in an economy, so in science, there is a "take off" stage, beyond which it continues to grow on its own momentum, as science is doing now. A fast change in technology, on the other hand, is a by-product of a faster change in science.

In India, the overall impact of science and technology has never been much. For the 80% people who live in villages, they are not a reality, and even among the 20% urban dwellers, they are not a reality for many, unless there are prolonged power cuts and frequent stoppages of water supply. The spread of science and technology in the West was followed by an exodus from rural areas and an occupational redistribution of population in favour of industry and commerce. But this has not happened in India. In the West, science and technology have been instrumental in changing the political and social structure, class relations and even values; in India, the effect is no more than marginal.

Although science education started in this country long ago, it was after Independence that a chain of national scientific laboratories were set up which enabled the Government to establish some control on science and scientific personnel. Then came the Scientific Policy Resolution of the Government of India in 1958 under which science became an official chapter in the life of the nation.

Technology is a different mater; it is an application of scientific methods for providing a better standard of living. Industry was introduced in India by the Western man and technology had never quite interested us in the past; the technology used here was what the Western man brought with him. Even now, when we talk of technology, it is not of an indigenous, or improvised variety, but one which has either come down from the colonial times or what the collaborating firms from the West are now bringing in. Since 1951 the country has started a chain of "institutes of technology", but these are not the real sources from which technology is coming to our industry. On the other hand, the cream of their products are learning for the West. The Government, which was so quick to come out with a Scientific Policy Resolution soon after a few national laboratories were established, has not shown the same interest in technology.

Even though in the eyes of the Western man, the scientific community in the Third World countries, including India, is "disorganized, disunited of limited professional competence, poverty-stricken, intellectually isolated and directed towards largely romantic goals or no goals at all" (Nicholas Wade),the scientist working in this country has a somewhat exaggerated notion of himself. He is part of a global crowd in which the results of scientific research are shared by scientists all over the world. But what about technology which is specific not general, local not universal, severely constrained by the aptitude of the people, their value sense and the country's resources. Whereas the frontiers of science have no limit and may not even have an immediate purpose, technology becomes relevant only when it is capable of meeting challenges and solving problems by taking care of the minimum needs of the people, generating self-reliance and reducing unemployment. Technology becomes important when its commercial promises can be realized in the near future; otherwise it is useless. Can we say that we have either evolved a technology of our own or that the technology in use during the last thirty years has been relevant to our purpose?

Higher technological education in India started in the 1950s with a fanfare, but before long it was apparent that it was in no way different from, or superior to, what was called "Engineering" in the colonial times. It has been producing the same toolmen. A belated attempt in the 1960s to introduce Engineering Sciences through a Special B. Tech. course at the instance of the Centre was abandoned by 1970, because there was nothing "special" about it. Since many foreigners, mostly Americans, were involved in this post-Independence venture, it developed before long into a two-way traffic, and many Indian teachers from the technological institutions went to the American schools, notably the four "State" universities, on what was then called the U.S. Technical Cooperation Mission (later USAID). On return they were expected to take over from the American professors in India.

This flow continued for the whole of the 1950s and for a part of the 1960s and was mainly related to studies in agriculture. With American professors to start with, with America-trained Indians to replace them, with American curricula and textbooks produced in America (of which the Eastern economy edition was soon available in plenty to suit the Indian purse), we cannot really say that our new venture in technology had its root in our genius or tradition.

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The whole thing developed into a brain drain of a colossal magnitude and can stop only if the West closes its doors to the coloured engineers from the Third World countries. The American Association of Engineering Education keeps in touch with the industry as to the type of engineer it needs so that the curriculum is adjusted accordingly from time to time. This has been unnecessary in our context, since we operate on a borrowed curriculum and hence we often hear people complaining about the lack of an "interaction" between our industry and our technological education.

Having started on a borrowed curriculum, it was but natural that our technological education would soon drift towards postgraduate teaching and research which it did on the basis of the recommendation of a Review Committee in 1959. The process gathered further momentum as more institutes of technology came up in the 1960s. All these institutes were supported by (Western countries (the U.K., the USA, the USSR and West Germany), whose technology is capital-intensive and labour-saving, and the curriculum was heavily influenced by them. In consequence, India today presents a paradoxical picture of being the third in the world in the supply of scientific and technical manpower, yet with a vast and growing population which lives below the poverty line. If science and technology are a tool for development, the tool has not helped us.

A real answer to the country's needs would have been education of a not so higher, but a well-distributed lower level which could equip the country's vast manpower with some technical competence which they could utilize. Instead, the outlay on higher education has mounted from Plan to Plan. The whole thing looks like a relief programme for unemployed engineers who stay on at their alma mater for years after graduation in the name of doing postgraduate, research or post-doctoral work. The less fortunate join the growing army of jobless engineers. A fine example of manpower planning! An unemployed person is bad enough; an unemployed engineer is worse, since the country has wasted its resource on him.

Routine research is now fairly widespread in all the teaching departments of a technological institution which blindly rewards paper production but not teaching. A new virus appeared in the early 1960s when for the first time research was ordered by an outside agency. This is called "sponsored" research. Starting as part of a teaching department, project-based, time-bound and financed by an outside agency, indigenous or foreign, sponsored research soon led to the setting up of what are now called "Centres".

Some of these were breakaway groups from teaching departments, others started independently. These have been welcomed by the authorities who find in the Centres a little more elbow room to do as they please when departments are comparatively rigid, and like a prodigal child of aged parents, the Centres thrive with the money meant for the teaching departments. If technological education in India has little relevance to the country's needs, the centres have still less. For, research, even when successful, is not development and not much of the research is saleable.

A twin-brother of sponsored research is consultancy. Basically, the two are the obverse and reverse of the same medal and their sources are more or less similar. To the best of my understanding, the two are not the outcome of need or urgency, but a by-product of a fiscal concession which the sponsor desires to avail of, while gaining a foothold in academic circles, which before long may turn into a stronghold. With a humble beginning only a few years back, sponsored research and consultancy have grown enormously, undermining teaching but becoming a status symbol in the eyes of the academic community.

Research has glamour but no accountability; ordered research (including consultancy) has glamour no accountability but plenty of money. Teaching is now a donkey's job. Once in a while research may be creative but ordered research is never so and hence in no way does it help education. What has been said above is as much applicable to higher technological institutions as to Government agencies like Indian Councils of Social Science Research and Historical Research and even to some extent the CSIR, which lavishly finances wild projects which never see the light of day.

We are progressing fast in industry, but largely through "collaboration' and the collaborator usually brings in his own technology. But it is in rural development that our growing technical manpower has to find its place in future. Yet agricultural engineering is the least popular subject in technological institutions. In a country where 80% of the people are engaged in agriculture, less than 5% of the scientific and technical personnel specialize in this subject and, of them, hardly 10% are engaged in research and development work. ☐

[*Courtesy* : *The Statesman*]

Due to increase in the cost of production of the Journal, the advertisement rates have been revised with effect from 1-10-1981 as under :

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—Editor

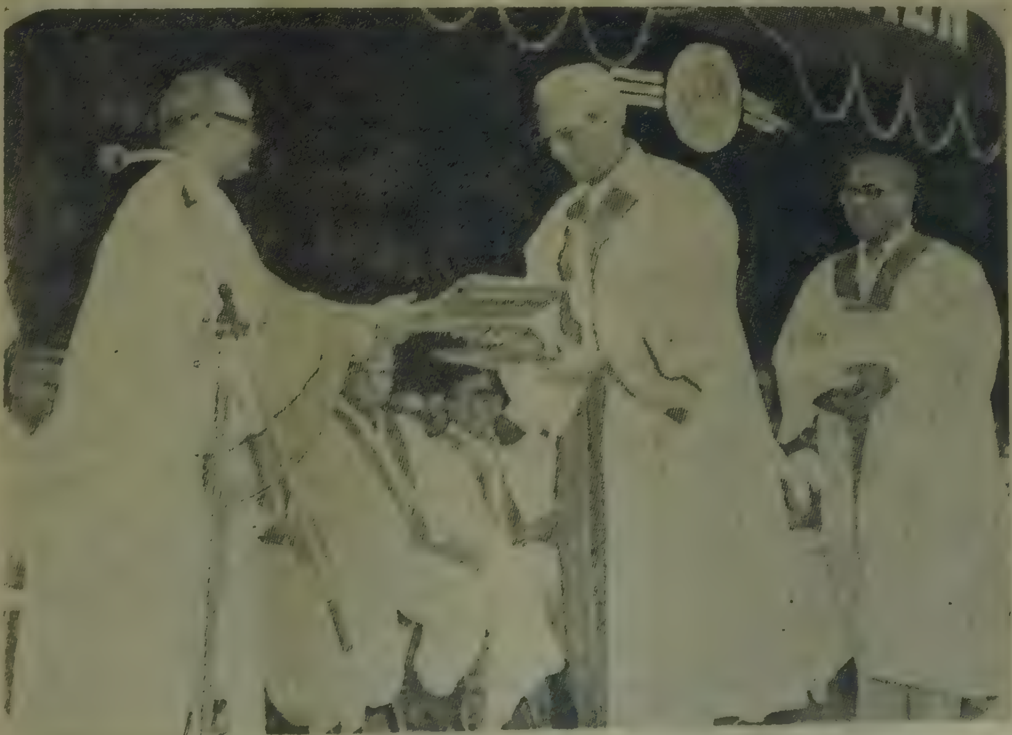
Application and management of technology

It is now just over two decades since the Indian Institute of Technology was established at Madras. This was part of a process of a massive expansion of technical education in the country, in terms of both quantity and quality, and also in terms of a greater regional spread. It was further conceived, as a part of this policy, that we must set up a few centres of excellence, which will produce technologists of outstanding quality, both by national and international standards. Today, it may be an appropriate occasion to undertake a little introspection—as to the progress we have achieved; how far we have been able to accomplish the goals that we had then set for ourselves; and what changes may be called for in the light of the conditions that have emerged in the intervening years within the country and outside. Above all, we should examine some of the major problems of our economy and our society, some old and some new, which need to be tackled specially by our scientists and technologists and by Institutes.

It is needless to emphasise the crucial role of science and technology in the economic and social development of nations. Even as compared to a decade ago, it would appear that the weight attached to technology as an independent factor in national output has gone up significantly. A recent study relating to a number of industrially advanced countries shows that technological inputs have accounted for as much as 80 per cent of the increase in the gross national product of these countries. It would be a defiance of history and a serious error to think, as a few obscurantists sometimes argue, that advance in technology is not of equal importance to developing countries, though undoubtedly the nature and directions of technology and the methods of its application would have to be tailored to the specific national conditions and needs. Indeed, neglect of technology is something that a poor country like ours can ill afford. Pandit Jawaharlal Nehru understood this with remarkable percipience and foresight, and consistently extended the weight of his position and prestige, not only to the advancement of technology, but also to the inculcation of what he fondly called the "scientific temper". Our Prime Minister, Shrimati Indira Gandhi, is of the same mould, and has continuously emphasised the role of technology, not only in traditional areas like agriculture and industry, but in the newer areas such as ecology, environment, energy, child nutrition, and the quality of life in general. It is to them and their vision that, as a country, we owe such progress as we have made, as acknowledged within the country and abroad.

In 1950, we had some 40 engineering colleges, with an annual output of around 3,000 engineers, whereas today there are over 150 colleges and over 70,000 engineers are graduating every year. A large and wide network of research centres of different kinds, over 900 in number, have been set up all over the country. We are today spending over Rs. 800 crores, that is, about 0.6 per cent of our Gross National Product, on research and development. Our stock of scientific and technical manpower has been growing steadily, at an average annual rate of about 9 per cent, over the last two decades, and is now estimated to be over two and half million. In this respect, India is generally acknowledged as being the third largest in the world. This is certainly an achievement of which we can, and should, be proud.

The result of this phenomenal expansion are evident most notably in such fields as agriculture, atomic energy and space. The production of foodgrains, which increased at an average annual rate of 1.4 per cent during the period 1950-65, has been growing at a rate of 2.3 per cent over the last 15 years. The remarkable



Prof. Satish Dhawan, Chairman, Space Commission, receiving the degree of Doctor of Science (Honoris Causa) from Prof. P. V. Indiresan, Director, IIT, Madras at its Convocation held recently.

progress that we have made in the fields of atomic energy and space which are specially science-intensive, has placed India amongst a handful of nations in the world, despite many impediments that we have encountered. The most recent achievement of our scientists in successfully placing the satellite APPLE in geo-stationary orbit is a matter of justifiable pride to every Indian citizen. Thus, as a nation, we can be confident that we are not taking a back seat in scientific and technological capabilities and potentialities.

It is my thesis that our deficiencies, in so far as the industrial sector is concerned, have not been so much in the advancement of technology *per se*, but rather in the application of technology, such as we have acquired or developed, to concrete productive purposes, fully and in ways which are relevant to our economy and society. It has increasingly come to be recognised that the application of technology is closely linked with modern methods of management, which itself has become as much a science as an art, combining as it does the features of both the physical and the social sciences, such as communications, data collection and analysis, organisational behaviour, etc. It was some years ago that the French writer Servan Schrieber published his classic, "Le Defi Americaine", ("The American Challenge"); expounding that the gap between America and Europe was not so much a technological gap as a management gap, or to put it more accurately, that it was the management gap which accounted for the technological gap. Since then, of course, many European countries, as well as notably Japan, have taken a variety of measures to close the gap in what I would call the "technology-management" system, with considerable degree of success. It is on some aspects of this theme of application and management of technology that I would like to devote my address to you.

For this purpose, it is, first of all, necessary to understand the nature and inherent features of technology. What is generally described as the technology chain comprises a series of links or stages, which, however, often tend to merge or overlap into each other. Thus, we have—basic research, applied research, technology development, design and engineering, the creation of productive assets, and finally, production. I would also emphasise that this chain would be both incomplete and barren, unless we take into account consumption also. If we look at the links in the chain in sequence, the emphasis progressively shifts from concepts or ideas to multi disciplinary systems, from individual effort to that of teams and organisations; and from software to a combination of hardware and software, such as best facilities, pilot plants, consultancy, design and engineering. The required level of financial and human resources also progressively increases. Taking these features together, if the system as a whole is to be effective, there should be: appropriate linkages between the different links in the chain; proper allocation of resources, both material and human, to the different segments; and determination of priorities which are relevant to our economic and social conditions and needs and which should inform the whole system.

Considering the question of linkages first, it seems to me that the simplest and most direct way of forging closer linkages is to encourage and promote much greater horizontal mobility among the scientists and engineers engaged in the different segments of the chain, rather than attempt arms-length coordination on an inter-institutional basis. Here, let us take the position that prevails in the public sector, as an example. We have a large number of laboratories engaged in industrial research, manned by highly qualified and very good scientists. We have a large number of public enterprises, many of them involving very sophisticated technologies, with a large reservoir of competent engineers and managers at various levels. Some of the largest consultaney, design and engineering organisations in the country are in the public sector. We have also the Directorate General of Technical Development, to advise the Government on various policy and other matters of a technical nature. The office of the Development Commissioner, Small Scale Industries, is an even larger organisation, comprising a host of statisticians, economists, engineers and other specialists. It would appear that the way in which these institutions have grown up and are functioning is such that the interchange of ideas and persons, and the cross-fertilisation that is so essential for overall effectiveness, has become extremely difficult. There are many reasons for this—some of them valid, such as differences in the terms and conditions of service, allocation of residential accommodation, difficulty in carrying over terminal benefits, apprehensions about career prospects, etc. The position as to horizontal mobility in the private sector, among scientists and engineers engaged in different activities, is not much different. The result is that the planners, scientists, engineers and managers tend to work in isolation, whereas the compulsions of technological advancement and development warrant all of them working in close coordination.

Turning to the question of allocation of resources amongst the different segments of the science and technology chain, the example of Japan, which is now the third largest industrialised power in the world, is an illuminating one. The resources that Japan devotes to basic research are minimal, and largely confined to certain carefully identified areas, where Japan believes it could leap-frog to the forefront in the world. On the other hand, Japan has been very liberal in the import of technology. Even today, Japanese imports of technology are substantial, and about four to five times the value of the exports of its own technology. In other words, Japan does not believe in trying to do things which have already been done elsewhere, or in re-discovering known developments around the world. Where Japan is unsurpassed is in its ability in the application of technology in the production system—rapid absorption, adaptation and innovation, so as to achieve spectacular results, in terms of production, efficiency quality and costs. The result has been that Japan has been exporting products, superior in quality and lower in costs, to the very countries from where it has imported basic technology, and has won a substantial share of the market in countries till then regarded as unchallenged in such areas. I should pointedly add that, while Japan has been fairly freely importing technology, it has been extremely restrictive in practice in the matter of foreign investment, opening its doors to such investment only step by step, as and when its own indigenous industry has acquired sufficient strength and can meet the situation on reasonably equal terms. Even in the matter of import of technology, Japan's capabilities for internalisation, innovation and diffusion have been so excellent, that it does not resort to repetitive or continuing import of technology in the same area, whether of the same vintage or even of the next generation.

The remarkable performance of Japan in the field of technology seems to be attributable mainly to two factors. According to the OECD figures for 1980, 98 per cent of the total expenditure on research and development in Japan was provided by the industry itself. This is the highest among the OECD countries, and the comparable figure for U.S.A. is about 65 per cent. I should explain that the figures quoted above pertain only to industry-related research and development, and does not cover items such as defence or space research. The second factor is that Japanese industry itself directly employs a significantly larger number of scientists and engineers, in industrial and related development activities, than most other industrially advanced nations, including some who are still leaders in basic research with a large count of Nobel laureates. The spirit of concensus that characterises Japanese society, and the close rapport between the Government, industry, educational and research institutions, in arriving at common goals, as well as in the single minded way in which each of the agencies work towards these goals, are also no doubt equally important factors.

Thirdly, I had referred to the question of priorities, and the relevance to our economic and social conditions and needs. In the field of basic or applied research, related to the industrial sector, our plans and programmes must be more specifically focussed on our own special pattern of endowments, both of natural and human resources, and more intimately geared to meet the needs of industrial development. In our industrial research laboratories, the scientists not infrequently undertake work on products or processes that the industry is supposed or ought to need. Later, difficulties are encountered in persuading the industry to utilise and pay for the results of such research. These difficulties are compounded by the fact that, in our country, the facilities for upscaling, pilot plant trials and commercialisation of technology are generally inadequate. I was for some years, Chairman of the National Research Development Corporation, an institution that was set up precisely to bridge this gap, and I know what an up-hill task this is. In this matter, I am afraid the industry also cannot escape its share of the blame. Most enterprises do not take the trouble to identify their needs and problems, and to sponsor research to meet these requirements. Once this is done, the work of the scientists will be directed on needoriented or problem-solving lines, and the responsibility for utilising and paying for the results of such research as is eventually successful is automatically identified. In regard to pilot plants and similar developmental work, these can best be undertaken by the industry itself, not so much on the grounds as to who should pay for it or how the costs or risks should be shared, but for the more important reason that such work can be carried out most effectively, and at much lower overall cost and risk, at a location, where the environment and facilities for production exist, in close cooperation with the scientists and engineering organisations concerned. In the recent past, the Government of India has extended a variety of tax and fiscal concessions to encourage industries to themselves undertake research and development, or to sponsor research at other institutions, or a combination of both. It is of some satisfaction to note that the R & D activities in the Indian Corporate Sector, both public and private, which were almost negligible about a decade ago, now account for something like 20 per cent of the total R & D expenditure in the country. It is my hope that this will increase further, both in quantity and quality, and more importantly in areas relevant to our needs.

Let me say a few words on the subject of imported technology. While no country can be self-sufficient in technology, and we need have no hesitation in importing technology wherever necessary, there are other equally important consideration—namely, the choice of technology appropriate to our needs and conditions— the extent, mode and terms of import; the effective utilisation of such technology; and above all, the need to ensure that imported technology is complementary to, rather than in conflict with, the development of indigenous technology. There have been cases where the technology we have imported has not been appropriate to our needs and conditions, either because they were not suited to our raw materials, or to the level of our operational or managerial skills at the given time, or for other reasons. There have been cases of multiple, repetitive, or continuing imports of technology, with the result that imported technology becomes a crutch rather than a stepping stone. In order to avoid these, we should consider outright purchase of technology, wherever feasible, especially in process industries, on terms which permit wider diffusion. We have also to remember that it is rarely that the package of technology is wholly imported or wholly indigenous. We may, for example, import the process and engineer the equipment, and there may be other combinations. Our endeavour should be to match these in such a way that we are able to optimise on both. The policies of Government on foreign investment and collaboration have been modified, from time to time, in these directions. But a policy is only a prescription, and its realisation depends on the response and cooperative action of many groups and agencies. The basic necessity, as I have pointed out, is to improve our capabilities in the absorption, adaptation, innovation and diffusion of technology.

Earlier, I had referred to consumption as an essential link, which completes the chain. While it is true that, in terms of activities, we have to proceed from the extension of knowledge towards the extension of application, the primary impulse directing the whole chain must be derived from the consumption needs of the common man. In this, I would also include the technology of distributions and of marketing. It is my feeling that an important reason for the slow growth or stagnation in a number of consumer goods industries is because most of them are geared to meet the consumption needs of something like the top 10 per cent of the population of our vast country, and there are therefore obvious limits to their further growth and prosperity.

All of these issues on the subject of application of technology that I have discussed can be compressed into one capsule word—RELEVANCE. This leads me to a question that is nearer the bone to an institution like yours. The charge is not infrequently made that the I.I. Ts, like the I.I.Ms, are elitist institutions. I am given to understand that the Government spends something like Rs. 30,000 per student per year, which is over 15 times the consumption levels of half the population in our country. If we look upon this as an investment, the Government makes an investment of about Rs. 1.5 Lakhs to produce one I.I.T. graduate, which is the limit that an individual can possess without being subject to wealth tax. A good proportion of the I.I.T. graduates proceed abroad almost as soon as they pass out, and their services are lost to the country at least for some years. It is estimated that around seven to ten thousand engineers migrate from India to the industrially advanced countries. The I.I.T. graduates who join industry in India get direct entry at the executive level, carrying four figure salaries, and are generally seen as a class apart. The charge of elitism is thus not surprising, nor the concern about brain drain. It is true, of course, that many come back, greatly enriched by new knowledge and skills. Some save money to come back and start their own industries. Some do not come back, even if they wish to, because we cannot as yet provide adequately the kind of specialised opportunities that they will find satisfying.

In a complex and changing world, it is not easy to make simple and final judgements on such matters. A centre of excellence has, by definition, to produce persons of excellence, in knowledge and in skills, which are far above average, and thus carry a stamp of excellence. If the excellence is of international standards, as I believe it is, a certain measure of international mobility is inescapable, at least in a democratic society. One can thus perhaps, make a distinction between excellence and elitism. But, excellence, without relevance—relevance to the social weal—is certainly elitism, and this is what sometimes troubles me. Then, the stamp of excellence becomes the stigma of elitism. As a society, we have a tradition of respecting learning and wisdom. But our concept of a learned man is one of high thinking and simple living. Therefore, in the I.I.Ts, along with a training of excellence, it is necessary to inculcate an abiding concern for the problems of the common man and the ways in which a technologist can play a role, which is seen as being beneficial to society in general, if we are to escape the charge of elitism.

I have placed before you certain contemporaneous problems, as I see them relating to the application and management of technology in ways which are relevant to our economy and society, and the need for continuous upgradation of knowledge and skills in a world which is changing more and more rapidly. You will naturally wonder what it is that the I.I. Ts themselves and related institutions and organisations can do to reorient themselves to meet these challenges, looking to the 80s. Arising from what I have said, let me recapitulate, in but a general way, some of the goals that we must set before ourselves over the next decade. There is an imperative need to bring about much closer integration between our centres of education, centres of research and our production system. The concept of relevance in our technological progress, with due regard to our conditions and needs, must be increasingly inculcated among the students especially in our centres of higher education. Modern management skills and techniques, on which effective application of technology is so dependent in the world of reality must find much greater place in our higher educational system. A variety of measures will need to be worked out to ensure continuous upgradation of knowledge and skills, at all levels in different parts of the country.

(*Excerpts from the convocation address delivered by Mr R. Venkataraman, Union Finance Minister, at the IIT, Madras*).

National Seminar on Examination Reforms at Mahabaleshwar

A National Seminar on Examination Reforms was held on 14-16 January, 1981 at Mahabaleshwar near Poona, under the joint sponsorship of the Association of Indian Universities and the University of Poona. Representatives were invited from 15 Universities having Examination Reform Units. In addition, a few resource persons were also called to help at the Seminar.

The three important objectives of the Seminar were:

a) to review the work done by Examination Reform Units in these universities and to exchange and share experiences in implementation of various measures of examination reform;

b) to evolve more practical guidelines for the implementation of Examination Reforms by all universities with particular reference to those who are likely to join in the near future;

c) to evolve minimal reform programme and activities to be adopted by universities without Examination Reform Units.

Accordingly, the Seminar had there major activities consisting of a Review/Exchange Session, Practical Guidelines Session and Minimal Reform Programme Session.

The Seminar was inaugurated by Hon'ble Mr. Bhavanan Venkataraman Reddy, Minister for Education, Andhra Pradesh on 14th January, 81 at 9.30 A.M. The Minister reiterated the need for continuous internal assessment by student's own teacher, the need for introduction of grading at all levels of examinations and also the need to evolve and operate a good system of question banking. He also stressed the need to reform education system together with teacher evaluation & programme/course evaluation. He urged the teaching community to rise up and grow trustworthy and discharge their functions with integrity, honesty and devotion. He felt that restructuring courses, providing remedial teaching and adopting innovative techniques like open book examination are all worth considering. Earlier welcoming the participants, Dr Amrik Singh, Secretary AIU, set the tone for the proceedings of the Seminar by asking them to give top priority to the non-controversial aspect of Examination Reform namely Question Banking. He suggested that for teachers and students alike, a Question Bank is a better version of a detailed syllabus. He reiterated the need for training of the teachers for the implementation of various reforms.

In the first session, Co-ordinators/Directors of various ER Units of universities presented a detailed report of activities undertaken in the implementation of Examination Reform, followed by discussion on each of them. There was a summary of this presented. In the second session, there were three aspects, namely, guidelines for implementing Question Banking, continuous Internal Assessment & Grading. There were lead speakers in these sessions and issues related to implementation of these theree areas of Examination Reform, were presented and thoroughly discussed. Three subgroups were constituted to go into details in these three areas and make recommendations. In the last session, on Minimal Reform programme and activities, there were two lead papers and after a thorough discussion, the National Seminar has made a detailed programme and provided guidelines for implementation of these in all universities.

Further, a separate session was held to consider issues related to Pre-conduct, Conduct & Post Conduct phases of Examination. Certain general recommendations were also made.

Summary of recommendations

The National Seminar on Examination Reform recommends :

General

1. that a Central All India Cadre for Controller of Examinations be established with the help of UGC funds and the recruiting agency, Union Public Service Commission. The idea is to have top level, competent and well trained manpower to implement reforms in mass conducted examinations;
2. that a National Merit examination be instituted for students from various universities to voluntarily take it. The idea is to establish comparability of standards amongst different universities;
3. that a National Professional Non-Profit organisation like national Testing Service (NTS) be established on the lines of Educational Testing Service (ETS of USA). Agencies like University Grants Commission, Union Public Service Commission & the Association of Indian Universities may jointly establish the NTS

which will be responsible professionally for educational testing & measurement at all levels of higher education;

4. that a National Seminar on Examination reforms be convened once in two years for purposes of reviewing work done and for evolving practical guidelines for implementation;
5. that AIU & UGC may explain the implications of adopting a five point scale grading system uniformly in all universities to all the recruiting agencies like UPSC and other State Public Commissions, both private and public sector undertakings;
6. that the Association of Indian Universities be given the responsibility of disseminating information regarding research in examinations, resource materials on several issues of examination reforms from various universities. The idea is that the AIU will perform the function of collecting, collating & distributing information from various universities.

Specific recommendations

After deliberations and detailed discussions on several issues related to implementation of Question Banking, Continuous Internal Assessment and Grading, the National Seminar recommends:

A. With respect to Question Banking

(i) that every university be encouraged to develop its own Question Banks in several subjects keeping in view that such banks are an aid to teaching, learning, papersetting and evaluation. In preparing Question Banks in several subjects, every university must involve a large number of teachers in every subject including the Chairman & members, Boards of Studies, make use of AIU banks as resource and organise a series of Question Banking workshops for purpose of writing, editing and prevalidating questions;

(ii) that every university be encouraged and enabled to use from time to time, Question Banks developed by AIU;

(iii) that every university be encouraged to indicate in its detailed syllabus reference to AIU Question Banks and develop Question/items other than those contained in AIU banks;

(iv) that wherever possible, the universities may produce a large number of questions/items of different types so that these banks can be made 'open' to teachers, students & examining boards. Wherever it is not possible to have a large number, such banks must be 'closed' and only a small sample (10%) of questions/items be made "public";

(v) that every university be encouraged to purchase several volumes of AIU Question banks and make them available to all colleges and their teachers.

B. With respect to Continuous Internal Assessment, the National Seminar recommends :

(i) that a system of continuous internal assessment covering measurement of higher order cognitive abilities like application, analysis. Synthesis and evaluation as also non-Scholastic abilities and skills like interests, attitudes, regularity, discipline, qualities of leadership, team work initiative etc. with the help of several tools like periodic tests, class and home assignments, term paper, thesis, case studies, projects, laboratory work, field study, seminar, and rating scales etc. be introduced;

(ii) that marks/grades of continuous assessment and end of term examination be recorded and shown separately in the transcript to be issued to every student indicating name of the institution to which the student belongs. Assessments of non-scholastic areas can also be shown on the transcript. If the ability/skills measured by both assessments are the same they may be combined on equal weightage basis and also after scaling the internal marks;

(iii) that continuous internal assessment be made open. However, a student may be allowed to complain to an Appeals Committee if he is not satisfied with the assessment;

(iv) that a system may be introduced on an optional basis in all universities where either the system has not yet been introduced or where it was introduced and given up subsequently. In this connection, care may be taken to introduce the system where the teacher-student ratio is favourable and where students are admitted on merit;

(v) that teachers may be trained to implement continuous internal assessment. Also, a leaflet detailing out the implications of continuous internal assessment be prepared and distributed to students, parents and administrators.

C. With respect to grading

the National Seminar recommends :

(i) that all universities in India adopt direct grading system having a five point scale as given below for their P.G. examinations first and U.G. examinations later. A dead line may be set for their introduction (1983).

Classification

Grade	Description	Grade Points
A	Very good	4
B	Above Average	3
C	Average	2
D	Below Average	1
E	Poor	0

(ii) that where the question papers contain objective items/Short Answer questions and essay questions, direct questionwise grading be adopted for short answer and eassy questions while the objective portion be marked first then converted into grades with the use of conversion Table;

(iii) where a practice of conversion of mark to grades exists, a separate conversion table in every subject be prepared and used;

(iv) that the practice of awarding pluses and minuses be discontinned forthwith;

(v) that the grades in internal assessment and external *exams* be shown separately;

(vi) that the AIU, UGC & the Ministry of Education be requested to explain the assessment made under grading system to all employing agencies, institutions, government department etc;

(vii) that students may be allowed to improve their grades;

(viii) that a minimum of 'D' grade be set as passing level in any course : a minimum GPA of atleast 1.5 for award of a degree and atleast 2.00 for an award of Post Graduate degree;

(ix) that training programmes be organised to train teachers and examiners in direct grading.

D. With respect to Minimal Reform Programme & activities to be undertaken by universities, without ERU (Examination Reform Unit), the National Seminar recommends :

(i) that every university undertake revision of syllabus to make it clear, unambiguous and specific to include:

(a) all subject matter to be taught

(b) students' abilities to be developed

(c) link with other subjects

(d) activities of students

(e) breadth and depth of treatment of topics

(f) time allocation

(g) time and frequency of tests.

The most important idea is that in addition to a detailed expansion of content, a set of specific instructional objectives be prepared and included;

(ii) that every university that has to deal with an increasing number of examinations, be encouraged to get the colleges to conduct a portion of their examinations and thus share responsibility of conducting a good number of examinations within restriction of time. The idea here is that such colleges in due course of time develop their own expertise in conducting examinations and thus prepare themselves to become autonomous in future;

(iii) that every university be encouraged and required to use "blue prints" or "charts' as specifications of content and ability in every subject for preparation of examination papers;

(iv) that every university be encouraged to use a combination of objective short answer and long answer questions in every examination paper. While it can be suggested that the proportion of objective, short answer and long answer can be 25% : 35% : 40%, the actual proportion can be decided by every Board of studies. The main idea here is that every question paper in terms of the variety of items and also a large of items to be answered within a specified time improve content validity and reliability of marking;

(v) that every university be required to reduce choice of questions in the paper and eventually remove options in question papers. This means that only internal options be given in that section involving essay questions;

(vi) that every university be encouraged to make use of a group of 2 to 3 teachers responsible for setting a paper; another group to moderate the question papers. Wherever necessary and possible centralized paper setting be adopted to save considerable amount of time in setting up papers and certainly a procedure that will be very valuable for semester examinations;

(vii) Every univesity be encouraged and helped to randomise answer scripts from different examination centres so that every examiner will reasonably get identical quality of answer scripts and any variation in their marks can be attributed to them rather than to the varying quality of answer scripts. Along with randomisation, every university be encouraged and helped to adopt scaling of marks from different examiners to a standard common scale;

(viii) that every university be encouraged to adopt centralised evaluation of answer scripts to save time to improve reliability of marking. A simple procedure to adopt will be to get every examiner to mark answers of various students to a particular question;

(ix) that every university be encouraged to develop and use objective type tests to start with for continuous internal assessment and later in end university examination; and

(x) that every university be encouraged to undertake training of teachers, paper setters and examiners and also undertake analysis of past examination results statistically to prepare ground for introducing reforms from time to time.

CAMPUS NEWS

Advanced research methodology discussed at Tirupati

The Post-Graduate Department of Education, Sri Venkateswara University, organised a Short-Term Institute on Advanced Research Methodology. The main aim of the Institute was to help teacher educators to keep abreast of modern developments in research methodology and research techniques with particular reference to those areas relating to classroom climate. Within the broad administrative framework, it is the classroom that holds the core of the instructional activities and offers to pupils an instructional setting. In the classroom each group develops its own structure, norms, goals, leadership, cohesiveness and trust. These evolve as a result of the varied interactions between and among the many individual and group factors, such as, needs, interests, expectations, perceptions, motivation and abilities. Pupil behaviour is greatly influenced by all these factors. Classroom has, thus, offered considerable opportunities to researchers who have attempted to vary the several inputs such as, specific teacher behaviour, method and media, specific motivational devices, and so on, with a view to enhancing effectiveness of instruction to ensure the attainment of specific outcomes in pupil behaviour. The processes that operate within the classroom triggered by the inputs and resulting in the outputs have been the main focus of the emerging areas of classroom research.

Prof. M.V. Rama Sarma, Vice-Chancellor of the University, while inaugurating the course said that teaching and research were the two major functions of University and College teachers and stressed the importance of such courses in improving their teaching and research competencies.

About twenty-five participants from different colleges and universities attended the course. The topics covered in the Institute included a discussion of the modern developments in Social Science Research Methodology and Statistical Techniques in general and those relating to Classroom Research in particular. In addition to lectures by experts, practical sessions were arranged in the Statistics Laboratory to enable the participants to acquaint themselves with the several electronic devices in the computation of statistical measures. A special feature of the course was the individual practical work and small group discussions arranged in the Committee Hall of the Library where all relevant books, journals, research monographs, reports etc., relating to the theme of the course were put on display.

Department of Journalism at Patna

The University Grants Commission has approved the plans of Patna University to set up a Department of Journalism and Mass Communication during the Sixth Plan. The Commission has also agreed to set up a department of biochemistry. A UGC team would the visiting the university soon to review the other requirements of the university. The university is also likely to get a computer during the coming years. The computer centre of Patna University would also assist other universities of Bihar such as Bhagalpur University, Magadh University, Bihar University, Mithila University and Kameshwar Singh Sanskrit University.

The Commission has sanctioned Rs 1 crore to Patna University for the Sixth Plant period whereas other universities of Bihar have been provided Rs 75 lakhs each. In the Fifth Plan, the UGC had sanctioned over Rs 2 crore to Patna University but it has made a drastic cut in the Sixth Plan, Dr S.P. Sinha, Vice-Chancellor, said that 20 per cent of the allotment would be spent on buildings, 25 per cent on staff and 55 per cent on books, journals and apparatus. During the plan period, he said, the university would construct two new hostels one for boys and the other for girls. Hostels under construction would be completed with an amount of Rs 12 lakh due with the UGC. The UGC has agreed to release Rs 10 lakh forthwith out of its allotment, for purchase of books and journals. It has also agreed to provide development grants to college outside the plan after receiving development plans from principals.

Departmental status for correspondence school

The University Grants Commission has decided to increase the grant for correspondence courses at the undergraduate level from Rs 1 lakh to Rs 1.5 lakh per annum with immediate effect. At the post-graduate level also, the grant is being increased at the same rate.

The U.G.C. while announcing these enhancements has recommended that the school or institute of correspondence courses in a university should be treated as an academic non-vacation department.

The Commission has also approved new guidelines drawn up by its standing committee, to improve the functioning of correspondence courses. The guidelines lay down that at the undergraduate level, in these courses, there should be a minimum core staff of one Associate Director and one Assistant Director for the main subject. At the postgraduate level, the minimum staff should comprise two Associate Directors and three Assistant Directors to take care of the optional papers as also the areas of specialisation.

At present 21 universities and one institution deemed to be a university offer correspondence courses which have a total enrolment of about two lakhs.

Graduate courses dropped at Annamalai

The undergraduate courses at Annamalai University have been dropped with effect from the current academic year. A resolution favouring this "load shedding" was adopted by the University Syndicate which met at Annamalainagar recently.

Mr. S.V. Chitti Babu, Vice-Chancellor, who presided over the meeting said that the University would henceforth concentrate on diversification of postgraduate studies, stabilisation in professional courses, introduction of modern courses such as "energy" and widening of research avenues in keeping with the objectives of the University Grants Commission. He said the staggering strength of about 3,000 undergraduate students had been a strain on the finances and the administrative machinery. However, this major change would not affect the prospects of the teachers handling undergraduate courses. They would be redeployed in other wings of the University. A draft scheme for inter-disciplinary projects of the Chair in Agriculture, Economics instituted by Indian Bank through the donation of Rs. 6 lakhs was approved by the Syndicate.

The Education Minister, Mr. C. Aranganayagam, also assured the Legislative Council that the Government would see that the students in the South Arcot and other neighbouring areas were not affected by the decesion to close down the undergraduate courses.

Aligarh organises numerous adult education programmes

The centre of continuing adult education of the Aligarh Muslim University has launched a training programme for the instructors of the centre. The session of adult education functionaries was inaugurated by Dr K.M. Bahauddin, Pro-Vice-Chancellor. While inaugurating the course he emphasised the need to serve the community in a more direct and meaningful manner. He further lauded the efforts made by the centre, which had organised 60 adult and 20 continuing education centres during the current year.

Dr. J.P. Tiwari, Director of the centre, said more than 4,000 learners had benefitted from the programmes conducted by them during the ongoing session. Almost half their number were women, he added. The adult education facilities had been targeted at the 'backward localities of the city and the neighbouring villages.' More than 80 instructors and an equal number of functionaries would receive training at the weekly sessions.

UP to have two more public service commissions

The Uttar Pradesh Government is likely to set up two new public service commissions. One of them will be responsible for the recruitment of teachers and the other for subordinate posts in the State Government and local bodies. Each Commission is to consist of six to eight members besides the chairman. A decision on the locations of the Commissions is yet to be taken by the State Government.

The existing Public Service Commission of the State stationed at Allahabad has been found to be inadequate to cope with the heavy work put on it by the creation of a large number of posts due to increased developmental activities. In certain cases the Commission has not been able to select persons for as long a period as three to four years and this has created complications for the Government. In view of this the strength of the Commission was raised recently. This, however, has not been considered adequate considering the load of work.

Maharashtra varsities plant 400,000 trees

The Universities in Maharashtra have planted 400,000 trees in the campaign to grow more trees and maintain the region's ecological balance. Mr. O.P. Mehra, Chancellor of the universities advised the authorities of the agricultural universities in the state to undertake a massive tree plantation drive in an effort to conserve the environment. Mr. Mehra was releasing a series of stamps on flowering trees in Bombay.

UP university students plant 10,000 saplings

Under the auspices of Centre's eco-development camping programme, 4,500 students belonging to 10 universities of UP planted 10,000 saplings and dug 71,000 pits in the hill areas and other districts of the State. The scheme has been sponsored by the Union Education Ministry and the programme has been launched on a national level since last summer. It aims at involving the youth in the task of ecological development and in creating eco-consciousness among the masses.

All the universities of the state and the associating colleges with the assistance of the regional centre of NSS are organising tree plantation throughout the State. In the first phase the camps were organised in the hill areas during May and June. Under the second phase districts in the plains are being covered. In all 45 camps were organised. Besides planting saplings and digging pits, the students undertook disinfection of 517 wells, cleaning of roads, and lanes, drains and ponds, provision of medical aid to villagers, distribution of vitamin tablets to village children and construction of soak pits. Experts from different fields were also invited to address the camping youth and the villagemen on environment, health and other allied subjects. The idea was to create among the college youth and society as a whole an awareness of basic ecological and environmental sanitation.

Encyclopaedia in Hindi

Mr. M. Hidayatullah, Vice-President, released a Hindi encyclopaedia of Indian literature, in New Delhi which is the first of its kind published in an Indian language, The 1,450-page encyclopaedia entitled "Bharatiya Sahitya Kosh" covers work of important Indian authors in 18 languages including that of Mohammad Iqbal and Tagore. The compilation has been made by Dr. Nagendra, former Professor & Head of the Hindi Department of Delhi University. The encyclopaedia would help in comparative study in the various Indian languages.

UGC chief calls for urgent reform of education system

Dr (Mrs.) Madhuri R. Shah, Chairman of the University Grants Commission has pleaded for urgent reform of the country's education system so that it became related to life, needs and aspirations of the rural community and served as an instrument of socio-economic development. She was delivering the 54th convocation address at Andhra University. The University conferred on her the honorary degree of D.Litt. She said if the universities could not find a solution to the problems of hunger, disease, malnutrition then their very rationale was in question. The challenge before them now was how in addition to fulfilling their traditional role they could respond to the needs of the community. They would have to assume responsibility of social transformation and economic modernisation. She said the UGC had been asking the universities to reframe their conventional courses at the degree level and make them relevant to the needs of the region concerned.

Dr Shah suggested introduction of short-term post-degree-level diploma courses in vocational subjects for which there was demand. She also pleaded for post-masters degree diploma courses in areas like energy studies, space sciences, computer sciences, environmental management and resource development. Such courses, she felt, should be in collaboration with research and development institutions and industries. She regretted that many universities were functioning far less than the stipulated 180-days working schedules. Another aspect, she took exception to, was inordinate delays in the conduct of examinations. She called for meaningful dialogue between the University administrators, teaching and non-teaching staff and the students in a give-and-take spirit.

Gopal explains ideologies of Nationalism

Prof. S. Gopal, Chairman, Centre for Historical Studies, Jawaharlal Nehru University, New Delhi, delivered two lectures on "The Ideology of Indian Nationalism" under Sri Rebala Lakshminarasa Reddy Endowment Lectures at the Sri Venkateswara University. Prof. Gopal traced the emergence of Indian nationalism since the middle of the nineteenth century and outlined the thoughts and ideas that went into the evolution of Indian national struggle. He highlighted the similarities of national movements in India, Africa, Caribbean and Latin America. He pointed out that: "the ideology of Indian nationalism is the ideology of Third World nationalism."

Prof. Gopal, in the course of his lectures, identified three broad stages in the evolution of Indian nationalism. The first and the earliest one was essentially a 'loyalist nationalism'. The founding fathers of Indian National Congress were content in obtaining some jobs in the services, liberalisation of the rigidity of British bureaucracy and a limited say in the legislative bodies. Even men like Tilak did not desire a complete break with the British connection. The second stage began with Mahatma Gandhi's appearance on the stage of Indian politics. Gandhiji by mobilising the peasants and workers made the Congress a mass organisation. He demanded Swaraj. He gave first priority to the securing of the political independence of India before thinking of radical reforms in the social and economic spheres. However, since the thirties of the present century the Indian national movement imbibed certain socialist principles and strived at the attainment of independence on the one hand and socio-economic equality on the other.

The Karachi Resolution on the Fundamental Rights (1931) was the first step in the direction of the establishment of a socialist-oriented state. Jawaharlal Nehru, Prof. Gopal maintained, strived hard to make the Congress accept a socialist programme. Inspite of his initial failures, Nehru ultimately triumphed in shaping the ideology of Indian nationalism in the socialist direction. The setting up of a National Planning Committee by the Congress in 1938 under Jawaharlal Nehru's guidance with Subash Chandra Bose as the Congress President, was a triumph of these forces. Inspite of their differences, both Bose and Nehru tried to sustain the socialist ideology in the Congress programme. The creation of the Planning Commission and the inauguration of the Five Year Plans after independence is an indication of the changes brought in the nationalist ideology in the last twenty years of the freedom struggle. In spite of many drawbacks and shortcomings the ideology of Indian nationalism under Gandhi-Nehru leadership has undergone significant changes both in the content and methods followed to ensure not only the creation of a sovereign state but also the striving for a more equitable society and this ideology has become a model for national movements in other parts of the world.

Kidwai proposes open rural varsities

Dr. A.R. Kidwai, Governor of Bihar, has advocated the creation of open rural universities for non-formal education of rural youths. He was inaugurating the Department of Journalism started by the Indian Institute of Business Management in Patna recently. Dr. Kidwai emphasized the importance of professional courses like journalism for helping the youths in getting suitable jobs. He regretted that the Press and other mass media were urban oriented although 85 per cent of the country's population lives in rural areas.

Madhuriben's plea to assess impact of research

While speaking to the Deans, Principals and Heads of the Departments of Osmania Unievsity Dr. (Mrs.) Madhuri R. Shah, Chairman of the University Grants Commission, asked the Universities to indulge in introspection on the research projects so far undertaken and assess the impact of research. She said the approach to research and teaching should be changed based on the findings to make teaching worthwhile and meaningful. She said new methods should be developed by correcting the priorities if need be. She said greater emphasis should be given to tutorials than routine classroom lectures. Students should be encouraged to take up independent projects. National Testing Service like the Educational Testing Service in U.S. would help in judging the students' knowledge on a uniform scale. Stressing the need for examination reforms she said the autonomous colleges should experiment with new methods as they have a greater flexibility. She said the restructured degree courses were aimed to help the students contribute their share to the society in development activity. She said higher education should equip the students to handle any situation.

Dr. (Mrs) Shah said the Sixth Plan of the UGC envisaged the maximum utilisation of funds to develop teaching, research and extension. Greater emphasis would be given to equip and develop libraries. She accepted the suggestion of starting a UGC Newsletter giving information about the new programmes, plans, projects and financial assistance available from time to time.

Bihar issues ordinance on examinations

The Bihar Government recently promulgated another ordinance making use of unfair means in examinations a cognizable offence. Under the ordinance, a maximum of six months and a minimum of one month imprisonment or a fine of Rs. 2,000 or both could be given to offenders. The ordinance, called the Bihar Examination Conduct (Third Amendment), bans use of unfair means, helping examinees by outsiders, leakage of question papers, revelation of any matter about examination by those entrusted with the task of examination, loitering near examination centres and dereliction of duty by those entrusted with the task of examination.

Magisterial powers proposed for Bihar VCs

The Vice-Chancellors in Bihar universities are likely to get some magisterial powers to ensure the effective maintenance of peace and discipline on the campuses. Some restrictions however may be imposed by the Government on the participation of university and college teachers in active party politics. Both these issues are to be taken up for discussion in the meeting of the Vice-Chancellors with the Higher Education Minister in Patna.

BHU alumni honoured

The alumni of Banaras Hindu University at a function held in New Delhi distributed plaques to its prominent old students. Among those who were honoured by the Alumni Association were Union Ministers, Bhishma Narain Singh, Kedar Pande and Mrs. Ram Dulari Sinha besides Economic Administration Reform Commission Chairman, L.K. Jha, Bennet Coleman Executive Director, Ramesh Chandra, All India Radio Director General K.C. Sharma, Mr. Baleshwar Aggarwal, Lt. Gen. H.S. Banga, Mr. Chakradhari Aggarwal and Mr. Raman Rao, MP. Most of the recipients of the plaque had studied in different departments of BHU during the freedom struggle and actively participated in the movement.

New courses approved by Punjabi university

The Punjabi University has sanctioned a two-year MSc course in nutrition and dietetics with five seats to begin within the local Government College for Women from this year. The Govt. College for Women uptil now had one year diploma course in dietetics which was instituted last year. The university has now allowed over a dozen affiliated colleges to teach physical education as an elective subject in the three-year integrated degree course. Permission has also been given to restart the certificate and diploma courses in library science from this session.

New technical courses at Madras

The Perarignar Anna University of Technology has introduced the following new courses in the Faculties of Engineering, Applied Engineering and Science & Humanities w.e.f the current academic session. The new courses are: B.E., (Industrial Engineering); B.E., (Electronics & Communication Engineering)—Part-time; M.E., (Irrigation Water Management); M.B.A.; B. Tech., (Automobile Engineering)—Part-time; M.E., (Production Engineering) —Part-time; M. Tech., (Laser and Electro Optical Engineering); M.Sc., (Medical Physics)

Delhi to provide training for bank officials

The University of Delhi plans to conduct coaching classes for Probationary Officers in Nationalized Banks. These classes are meant for Scheduled Castes and Scheduled Tribes candidates seeking to enter this examination. The programme has been funded by the Ministry of Home Affairs, Government of India; the classes will be conducted under the academic and administrative supervision of the Adult and Continuing Education Cell. The first batch participating in this coaching programme will consist of 20 candidates drawn from among the total of 68 candidates. The Cell has received the applications from the Punjab, Rajasthan, Himachal Pradesh, Haryana, Uttar Pradesh, Madhya Pradesh and the Union Territories of Chandigarh and Delhi. Teachers from various colleges in the University of Delhi and Senior Managers from Nationalized Banks will be helping in the conduct of the classes.

CIEFL organises orientation course for college teachers

The CIEFL Regional Centre in Shillong organised a two-week orientation course for college teachers of English. About twenty teachers from Assam, Manipur and Sikkim attended the course which consisted of lectures and discussions on English grammar and usage, spoken and written English, principles of teaching English as a second language, syllabus and examination. The course was conducted by the faculty of CIEFL Shillong and Hyderabad.

New courses at Chandigarh

Panjab University plans to introduce, through the School of Punjabi Studies, an M.Phil Course in Comparative Indian Literature, a Diploma Course in Creative Writing in Indian Languages and another in Indian Lexicography. Prof. R.C. Paul, Vice-Chancellor, made this announcement at the inauguration session of the National Seminars on Bulleh Shah and Puran Singh organised by Sahitya Akademi in collaboration with the School of Punjabi Studies. The decision, according to Prof. Paul, was taken to solve the problems created by organising in the Universities the study of literature in different Indian languages in response to regional patriotism without providing at the same time for courses in Indian literature as a single, composite, academic and intellectual disciplines.

Exhibition of British Books in Srinagar

An exhibition of current British books on educational, scientific and technical subjects was inaugurated by Dr. Wahid U. Malik, Vice-Chancellor of Kashmir University, in the University's Central Library at Srinagar recently. The three day exhibition, organised by the British Council Division of the British High Commission, was the first such exhibition to be held in Srinagar and the second in the state of Jammu and Kashmir. An exhibition of British books on "teacher education" had been held in Jammu in March. Apart from some 320 reference books and dictionaries, the exhibition had on display several books and periodicals on teacher education, electronics and telecommunications. The English language teaching section also had cassettes and flash cards. Of particular interest to students and teachers alike was the collection of ELBS low-priced text-books. The English Language Book Society publishes text-books at specially low prices—often as low as one-third of publishers' own standard-edition prices. There were some 550 titles in this series covering a wide range of subjects. Each book has been selected for its recognised quality and many have been prescribed by universities and other institutions of higher education.

News from Agril. Varsities

Population workshop held at Hissar

Agricultural extension system are the most appropriate agencies for promoting population education because this system is able to reach every village in the country. No other rural extension system can match it so far as effectiveness in reaching the rural masses is concerned. This was stated by Dr. P.S. Lamba, Vice-Chancellor, Haryana Agricultural University in Hissar while inaugurating the first national workshop on "Population Education through Agricultural Institutions", organised by the Department of Extension Education of the University. Dr. Lamba said that as agricultural profession and rural life are inseparable the personality of an agricultural functionary is sympathetic to rural people. He pleaded for giving proper place to population education in the total system of our present system of education and urged that special attention to the rural areas needs to be given because of the fact that overwhelming majority of Indian population lives in villages and because demographic consequences of population explosion has been markedly more adverse in the rural than in the urban areas. Referring to the pressure on land, Dr. Lamba said, exploding population would increase its pressure on the land with the result that already small land holdings are becoming smaller. He apprehended that soon the bulk of the farmers will not be small farmers as today but only marginal farmers. This phenomenon urgently calls for changing agricultural technology and development strategy.

Dr. J.C. Kavoori, Executive Director of the Family Planning Foundation said that there is necessity of fundamental restructuring of family planning programmes and a change of behaviour at the micro level is necessary. In this task, the agricultural scientists and other functionaries who come in direct contact with village people could play an important role. Dr. Kavoori reminded the scientists that in their enthusiasm for human-number control, human values should not be sacrificed.

Roshagrass introduced in Haryana

Scientists of the Department of Plant Breeding of Haryana Agricultural University, for the first time, have introduced Roshagrass in Haryana. Roshagrass is an important essential oil yielding aromatic plant. Oil is extracted from whole of the plant material and sold in the market at the rate of Rs. 175 per kg. Oils has value because of the presence of geraniol (75%). Rosha oil has replaced sandalwood oil which was previously used as a base oil in the perfumary industry. Besides its perfume value, Rosha oil has the antiseptic properties too and is considered very beneficial against skin diseases. India ranks third in the export of oil Roshagrass. The plant has been studied for its adaptability and cultivation under Haryana conditions. On the basis of the last two years' experimental results, it has become evident that this plant is excellently adaptive, economic and can be cultivated successfully under Haryana agroclimatic conditions.

Farm scientists to confer on weed problems

Leading agricultural scientists from various Asian and Pacific countries, including India, U.S., Japan, Thailand, Malaysia, Indonesia, Australia and New Zealand are to participate in a week-long conference of the Asian Pacific Weed Science Society in Bangalore from November 22.

Dr. H.R. Arakeri, Chairman, Agricultural Scientists Recruitment Board, has been elected President of the Executive Committee of the society for 1980-81. In the context of the ever increasing problem of weeds and unwanted vegetation, which not only grab a part of costly inputs like fertilizers and water but also pose serious problem of their removal (either manually or through the use of herbicides), this conference assumes significance to the countries of the region. The conference is being jointly sponsored by the Indian Weed Science Society, Indian Council of Agricultural Research, University of Agricultural Sciences, Bangalore, the Karnataka Department of Agriculture and the Indian Institution of Agricultural Technologists.

Horicultural varsity likely at Solan

The Satyanand Stokes horticultural complex for temperate and sub-tropical fruits at Solan is likely to be upgraded as India's first horticultural university. A proposal to this effect has been made by the Horticulture Minister and is under examination of the state agriculture department.

According to reports available the proposal is based on the plea that a new university can be created at Solan with an additional financial outlay of Rs. 35 lakhs. At present the annual budget of the state's only agricultural university of which the Solan complex is a part, is about Rs 3 crores. At about 15 km from the town on the Solan-Rajgarh road, the complex is not easily accessible and therefore fails to create any impact on the rural population. Of the 1,300 acres with the complex only 350 acres are under cultivation.

However, apple, which is the major fruit of the state cannot be successfully grown at Solan. The place is also unfit for other temperate fruits like mango and cherry.

HAU holds symposium on rural development

Dr. P.S. Lamba, Vice-Chancellor, Haryana Agricultural University while inaugurating the first symposium on Dimension of Rural Development and Change in the North Western Region said that the development in the various sections of rural society has been lopsided. Despite several gains, poverty, hunger, low levels of living and of incomes still persist. He further said the number of unemployed landless labourers and those living below the poverty line has gradually increased. The development, while yielding direct economic gain, has also contributed to accentuate the already existing inequalities in the countryside. It is partly because the development and technological advancement has generated through existing institutional and structural arrangements in a way that it has not been evenly accessible to all and even if it has been, it has not been evenly observed owing to resources itself. Dr. Lamba urged upon social scientists to give a serious thought to various factors such as population, pressure, inegalitarian structure, policy constraints etc. and examine their roles in the overall development of rural areas. He said that it was obligatory on the part of the social scientists to analyse the means, processes, methods and skills by which individuals and groups can be organised effectively to play their role in improving the life of the masses.

Dr. M.L. Sharma, Chairman of the seminar, disclosed that economic development is not necessarily concomitant with all-round development. He said though Haryana and Punjab had made much progress in terms of economy, the hygienic conditions, the health hazards and problems of illiteracy have not made much headway and thus the myth of development is sadly punctured. He said the allocation for rural development is meagre in comparison to the extensiveness of the problem. He revealed that there is a proposal to set up a centre for rural development at HAU.

The symposium was organised jointly by the Indian Council of Social Sciences and Research and the HAU Deptt. of Sociology and was attended by 25 sociologists from Haryana, Punjab, Himachal Pradesh, Delhi and J & K.

New varieties of sugarcane introduced

The Haryana Agriculture Department has decided to introduce early maturing varieties of sugarcane in order to increase the duration of the crushing period and avoid glut at mills during the peak period. The department has also launched a campaign in sugarcane zones around mill areas for the eradication of the Guardaspur borer disease. A similar campaign had been organised earlier to control black bug over 13,000 hectares of the crop area. Pesticides were provided to gorwers at reduced rates. The area under sugarance crop is likely to go up to 1.42 lakh hectares during the current year against 1.15 lakh hectares last year.

BHU releases new wheat variety

The Government of Uttar Pradesh has released the new Malviya Wheat-37 (HUW-37) developed by the Institute of Agricultural Sciences of the Banaras Hindu University for general cultivation in the eastern region of Uttar Pradesh. The decision was taken at a meeting of the State Variety Release Committee held at Lucknow recently. This variety was recommended for cultivation in the north-eastern plains zone by the All-India Wheat Scientists' Workshop held at Anand (Gujarat) last year.

The institute sources claim that this variety of wheat gives more yield than any other recommended variety for the eastern region of the State under normal sown conditions except the Malviya wheat-12. This variety has also been found performing well "at no irrigation, one irrigation and two irrigations" as well as at all the fertility levels.

Science & Technology

New incentives for return of scientists

The Department of Electronics has formulated a scheme known as National Electronics Fellowships-return of scientists, engineers from abroad, under which technical information and guidance is provided to our scientists and engineers abroad who wish to set up industries in the country. The special incentives under the import policy for Indians returning from abroad regarding import of capital goods and consumables has also been formulated and an element of the incentive-oriented software export promotion policy, formulated by the department, relates to the generation of such software by our scientists and engineers returning from abroad.

Mrs Gandhi who heads the Department said that for several years now, the Department has been attaching great importance to programmes for training our engineers and technicians in a wide range of areas of electronics and a total investment of Rs 3.2 crores has been made up now on such programmes by means of grants to various institutions through the Technology Development Council of the Electronics Commission.

Ramanna pins hope on heavy ion physics

The heavy ion physics has the potential to solve the world energy crisis. Dr. Raja Ramanna a noted nuclear scientist in his lecture at the sixth international conference of women engineers and scientists, unveiled the exciting field. It aims at the greater exploitation of Einstein's celebrated equation. The equation implies that a tremendous amount of energy is released in the process of converting mass into energy and this forms the key to the success of nuclear energy. In nuclear fission only 0.38 per cent of the mass is converted into energy. If one can devise a process where at least one per cent of the mass is consumed to produce energy, that would mark the end of the world's energy problems.

The theoretical possibility of such a scheme lies in the bombardment of two heavy nuclear ions, at high enough energies, in special types of accelerators which are yet to be built. The subject, described as heavy ion physics, deals with the behaviour of two heavy energetic ions, say of uranium stripped of all electrons, when they collide with each other. Super-heavy nuclei are those stable nuclei produced artificially in accelerators, well beyond what exists in nature, namely, uranium with 92 particles. The super-heavy nuclei have a much larger number of particles and if such nuclei could be practically produced, it would render the nuclear reactors and other devices exceedingly small. Perhaps a "pocket reactor" on the lines of a mini-calculator may become a reality. Such nuclei, though theoretically possible, are yet to be produced or detected but efforts are still on to produce them. He put a word of caution that these reactions might fail to work the way they were meant to, or even if they worked, the technological hurdles might be immense. It may provide a solution for converting more mass into energy and thereby make it possible for us to get energy even from stones.

In a reference to fusion technology, Dr. Ramanna deplored the fact that the technical feasibility of the technology was proved only in a destructive weapon—the hydrogen bomb. As these experiments involved huge expenditure, subjects like heavy ion physics became an international problem and individual nations could ill afford such investments.

Personal

1. **Dr. V.C. Kulandaiswamy has taken over as Vice-Chancellor of the Perarignar Anna University of Technology.**
2. **Dr. M. Santappa has been appointed Vice-Chancellor of the University of Madras.**
3. **Dr. V.I. Subramaniam has been appointed Vice-Chancellor of the newly established Tamil University.**
4. **Prof. K.N. Kaul, former Vice-Chancellor of C.S. Azad Agriculture University, Kanpur, has been appointed agriculture adviser to the Uttar Pradesh Government.**

Bright prospects for nuclear research in N-E region

A team of experts from Board of Research in Nuclear Science, Department of Atomic Energy, Government of India visited N.E. Region to explore possibilities of nuclear research and for its development in the different areas including the Veterinary Sciences. The team consists of Dr Ashok Mohan, Scientific Secretary of the Board of Research in Nuclear Science, Dr. K.B. Mistry, Secretary, Food and Agriculture Committee, Bhabha Atomic Research Centre and Sri K.B. Shah, Head Radio-immuno Assay and Quality Control of Bhabha Atomic Research Centre. They have so far visited quite a large number of educational and research institutes of the region which includes the Faculty of Veterinary Science, AAU Khanapara and Jorhat campuses, Regional Research Laboratory, Jorhat, Toklai Research Station, Jorhat, Assam Medical College, Dibrugarh, Gauhati Medical College and Gauhati University. They also visited the Institute of Advanced Science and Technology of Assam Science Society.

The team visited the recently developed Nuclear Research Laboratory in the Department of Animal Physiology, Faculty of Veterinary Science, AAU Khanapara which was established after procuring some sophisticated instrument costing about Rs. 11 lakhs from the Packard Company, USA. The team of experts expressed satisfaction made in designing the laboratory with the guideline given by the Division of Radiological Protection, BARC for which the fund was made available from IDA, Education project of Assam Agricultural University. The BRNS Department of Atomic Energy has already sanctioned a research proposal on some aspect of nuclear research in Veterinary Science which is in progress. After meeting the veterinary scientists and faculty members, the team assured to extend further help and assistance to them in future after receiving project proposal for research in animal sciences in the region.

Letter to the Editor...

Sir,

Without meaning to join the galaxy of Vice-Chancellors whose views have been published in September 1, 1981 issue of the University News under the rubric who should run the universities ? I would like to point out that the question has been wrongly posed. It is a truism that the future of a university depends primarily on the academic leadership provided by the Vice-Chancellor. To play the role effectively and successfully he has to be an Academic Statesman who knows best and cares most and further, is willing to dedicate his life to the cause of Education in general and of university Education in particular. Such a man, except under exceptional circumstances, when persons like President Eisenhower or Chief Justice Sir Maurice Guayer may be induced to accept the position, must emerge from the teaching profession. The crucial question in India of to-day is what selection procedure will rule out extraneous considerations in the appointment of the Vice-Chancellor ? Who will do the choosing ? Under the growing practice whatever may be the facade or the smoke screen, the Vice-Chancellor is selected, not by the mortally afraid puppet chancellor, but solely by the State Government. And the search is no more for Prof. K.S. Narang's "Men known for their integrity and ability" or who have "earned a measure of fame either nationally or internationally." There is a long queue of men waiting for the job who stake their claim on services, rendered to the appointing authority—the Chief Minister or the Minister of Education. In the choice making, the interest of education is the least of the considerations. That such men should generally come from the Indian Administrative Services is understandable. They are the people who are in a position to oblige the authority concerned and they are the people who can be relied upon, as Vice-Chancellors, to continue the questionable service. The process must get accentuated with the increase of marginal men of doubtful integrity on the ministerial benches. The Indian Administrative servant is bound to have the upper hand. Unlike the Indian Civil Servant who, on retirement, was anxious to go back "home" for a well-earned rest, his successor the Indian Administrative Servant is anxious for extended service especially if he can combine pension with pay. This strong motivation explains his unwillingness to provide police protection to the Vice-Chancellor when he needs it, the intention being to paralyse him.

Another question equally important is how to safeguard the Vice-Chancellor from becoming a victim of political revenge. This growing spirit is well illustrated by the recent action of the Rajasthan Government. The Congress-appointed Vice-Chancellor Dr P.S. Lamba was driven away by the Janta Government and now it is the turn of the Congress(I) to avenge the wrong by driving away the Janta appointed Dr R.N. Singh by a similar process in the same university through a mock enquiry possibly by a retired "committed" man or a civil servant still on a climbing ladder. The Vice-Chancellor like his superior the Chancellor is a helpless creature. He does not belong to a unionised service which can offer him the minimum protection. The question is—what protection is available to a Vice-Chancellor against a wrongful action of a Government from the side of your Association, the UGC, the ICAR or even from the teaching profession ?

R. K. Singh
Suraj Nivas,
1/179, Civil Lines, Agra

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Social Anthropology

1. Basavakumaraiah, P. Rural females and secondary education with special reference to their status and values in Chitradurga District. Karnatak University.

2. Sahu, Santosh Kumar. Health culture of Oraons of Rourkela and its hinterland. Jawaharlal Nehru University.

Sociology

1. Mishra, Madhu Sudan. Economic development and social change in a north Indian village. University of Delhi.

2. Nongbri, Tiplut. Religion and social change among the Khasis. University of Delhi.

3. Sreenivasulu, Vandadi. Sociological study of Andhra immigrants in Nagpur. Nagpur University.

4. Surjit Singh. Semiological patterns in the myth and ritual of Sanjhi. Punjabi University.

Political Science

1. Arora, Subhash Chander. Failure of constitutional machinery in the states (article 356) with reference to Punjab, 1950-76. Maharshi Dayanand University.

2. Joginder Chand. The geography of political choice in Punjab (1952-77): An ecological analysis of patterns and trends of electoral behaviour based on aggregate data for elections to the state assembly. Punjabi University.

3. Mehta, Veena. Gram panchayats and their working in Jabalpur Division. University of Jabalpur.

4. Parmod Kumar. Violence and Indian Politics. Panjab University.

5. Sethi, Vinod. Freedom of the press under the Indian Constitution 1950-1979. University of Delhi.

6. Singh, Raja Joyce. A comparative study of Indian and Nigerian foreign policy on the Congo crisis, 1960-65. University of Jabalpur.

7. Syed Shafi Ahmed. The state structure in ancient India. Magadh University.

Economics

1. Azad, Nirmal Singh. Small peasantry in Punjab: An analysis of production conditions. Punjabi University.

2. Bhattacharyya, Gayatri. Refugee rehabilitation and its impact on Tripura's economy. University of Calcutta.

3. Bhattacharyya, Prabhasranjan. Signifinance of income leakage in export base model of regional growth: A case study of Tripura. University of Calcutta.

4. Dogra, Pushp Lata. Cement industry in India. University of Delhi.

5. Ghosh, Krishna. Industrial development in North Bengal. North Bengal University.

6. Gouri, Geeta. Strategies of industrialisation: A case study of Bangladesh. Jawaharlal Nehru University.

7. Gupta, Janak Raj. Tax incidence in Punjab: An inter sector and inter class analysis. Punjabi University.

8. Mishra, Dwijendra Kumar. Integrated development through growth centres: A case study. Magadh University.

9. Mohanty, Bijan Basini. A study of state industrial relations machinery in Orissa. Utkal University.

10. Nema, Madan Gopal. Economic perceptives of Bargi irrigation project of M.P. University of Jabalpur.

11. Padki, Mangesh Bhagwant. Long-term agricultural finance through co-operatives in India with special reference to Maharashtra state. University of Poona.

12. Ramulu, Ch. Bala. Organisation and working of a small farmers development agency: Case study. Kakatiya University.

13. Shasti, Vijaya Shripad. A study of economic relation between India and Nepal since 1950. Nagpur University.

14. Trivedi, H. V. Economic development of the tribal region of Rajasthan. University of Rajasthan.

15. Uma Shashi. Oilseeds economy of India: A case study of groundnut. University of Delhi.

Law

1. Singh, Sheo Narain. Restraints on concertration of economic power, monopolies and restrictive trade practices. University of Delhi.

Public Administration

1. Jayashree, V. Urban policy and development with special reference to the Hyderabad urban development authority. Kakatiya University.

Military Science

1. Pradeep Kumar. Importance of Uttar Pradesh in India's security. University of Gorakhpur.

Education

1. Arora, Sharad Raj. A study of sibling relationships and their psychological and educational implications. University of Delhi.

2. Grewal, Gurwant Kaur. A comparative study of the personality characteristics, adjustments and motivation level of non-participants and participants children of secondary schools in physical activities. Punjabi University.

3. Gulati, Kailash Chander. A study of factors associated with teachers predisposition to adopt educational innovations. M.S. University of Baroda.

4. Karunakaran, K. Identification of factors to be tackled in an effective programme of non-formal education and training of farmers. University of Kerala.

5. Lakshmikutty Amma, T.S. The role expectations of teachers. University of Kerala.

6. Ojha, Kamla Pati. A study of co-relationship between socio-economic status and achievement of high school boys. University of Gorakhpur.

7. Raman Nayar, Padmanabha Kutty. Education in Kerala and the development of human resources. University of Kerala.

8. Shafiqul Islam, A.K.M. An experimental study in teacher training programme with microteaching approach in Bangladesh. M.S. University of Baroda.

9. Sharma, Kameshwar. Some socio-economic characteristics and intellectual abilities of high school student. Magadh University.

10. Singh, Surendra Narain. A critical study of Rabindra Nath Tagore as an educational philosopher. University of Gorakhpur.

11. Sundaralakshmi, T.K. Instructional strategies: Their effects on classroom climate and pupil growth. M.S. University of Baroda.

Commerce

1. Dey, Nikhil Bhusan. Small scale industries in Cachar District: Their growth, problems and prospects. Gauhati University.

HUMANITIES

Linguistics

1. Bandopadhyay, Swapan Kumar. A linguistic analysis of Tangsa: A Tibeto-Burman language. University of Delhi.

2. Sthapit, Shishir Kumar. English, Nepali and Newari: A comparison and its pedagogic applications. University of Poona.

3. Trivikramaiah, Gunturu. The semantic study of standard Telugu verbs. University of Poona.

LITERATURE

English

1. Deshpande, Gauri. The image of the saint in modern English literature. University of Poona.

2. Manavalan, A.A. Patterns of heroism in the epics of John Milton and Kamban: A comparative study. University of Madras.

3. Satya Pal. Virginia Woolf's poetics of the novel. Panjab University.

4. Vidyavathi, K. Christopher Isherwood as philosopher and novelist. Kakatiya University.

Sanskrit

1. Brij Bala. Sanskrit sahitya ke Dakshin Bharat ke aitihasik mahakavya: Keval unnisvi shatabdi ke. University of Delhi.

2. Johannes, Bronkhorst. The Bahirangaparibhasa in the Paribhasendusekhara. University of Poona.

3. Thakar, Ambalal Dalsukhram. Reconstruction of Sankha Likhita Smriti with a critical study. M.S. University of Baroda.

Punjabi

1. Sukhmandar Singh. Realism in Punjabi short story, 1940 A.D. to 1970 A.D. Panjab University.

Hindi

1. Arora, Yash Pal. Ramdhari Singh Dinkar ke vyaktitva evam jiwan-darshan. Maharshi Dayanand University.

2. Girija Devi, S. Treatment of sringara by the poets of Vaishnava cult. University of Kerala.

3. Gupta, Jai Bhagwan. Samsamayik Hindi radio-natak ka adhyayan, 1950-75. Mahrashi Dayanand University.

4. Nayak, Sudhansu Kumar. Surdas aur Jagannath kee bhakti. Berhampur University.

5. Pandey, Diwakar. Gorakhnath aur unki parampara ka sahitya. University of Gorakhpur.

6. Tiwana, Indra Singh. Gurmukhi lipi mein Hindi Krishan kavya: Vishleshan aur adhyan. Punjabi University.

7. Tiwari, Ajay Kumar. Pragatisheel Hindi kavita mein naye saundarya mulyon ki abhivyakti. Universiiy of Delhi.

8. Verma, Jai Narayan. Hindi bhasha ke vikas mein anchalik upanyason ka yogdan, san 1950 se 1975 tak. University of Delhi.

Urdu

1. Javaed Ahmed. Saleha Abid Husain: Life and works. Nagpur University.

2. Razia Begam. Urdu ke is lahi adab mein Hali ki khidmat. Nagpur University.

3. Shah, Ismail Usman. Vidarbha mein Urdu shairi ka aagaz-o-irtaqa. Nagpur University.

Bengali

1. Basu, Syamali. Unabinsa sataker Banglaya Chithipatre lekho satter unmochan. University of Calcutta.

2. Ray, Malaya Kumar. A study of the socio-cultural aspects of Eastern Indian versions of the Ramayana. Gauhati University.

Oriya

1. Nayak, Upendra. Bhanja sahityar samajik prustha bhumi. Utkal University.

Malayalam

1. Namboodiri, M.V. Vishnu. Tottam Pattukal: A study. University of Kerala.

Geography

1. Bedi, Naresh. Geomorphological evolution of parts of Mahi and Narmada rivers in Gujarat, India. Andhra University.

2. Bharatiya, Devidas Ajabrao Gedam. Periodical marketing system and network in the Wardha Valley of Maharashtra: A regional case study. Nagpur University.

3. Gupta, Girraj Prasad. Cultural landscape of Bharatpur City and its environs. University of Rajasthan.

4. Singh, Vijya Lakshmi. Orissa: A study in transport geography. Utkal University.

History

1. Chavan, Kamal K. Maratha Murals: Late medieval painting of the Deccan: 1650-1850 A.D. University of Poona.

2. Dash, Mahesh Prasad. Temple of Jagannath during British rule. Berhampur University.

3. Mahajan, Shantaram Gajanan. History of the public library movement in Western Maharashtra, 1806-1921. University of Poona.

4. Sahu, Ananta Charan. Some aspects of British trade policy in India 1858-1905. *D. Litt.* Utkal University.

5. Sharma, Uma. Agriculture in ancient India: A study of its scientific, economic and social aspects upto sixth century A.D. University of Rajasthan.

6. Srivastava, Parmanand Lal. North West Frontier Policy of Delhi Sultans, 1206-1398. University of Gorakhpur.

7. Vijay Shanker. The early history of Andhradesa, 200 A.D. to 625 A.D. Magadh University.

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from periodicals received in AIU Library during September, 1981

EDUCATIONAL PHILOSOPHY

Abbs, Peter. "Promoting new first principles". *Times Higher Education Supplement* ((460); 28 Aug 81: 10.

Beeby, C.E. "The thesis of stages fourteen years later". *International Review of Education* 26 (4); 1980: 451-74.

Bollnow, Otto F. "On the virtues of the educator". *Education* (20); 1979: 69-79.

Guthrie, Gerard. "Stages of educational development? Beeby revisited". *International Review of Education* 26 (4); 1980: 411-38.

Poggeler, Franz. "Educational science as a political science". *Education* (23); 1979: 26-38.

Zopfl, Helmut. "Possibilities and limits of emancipatory education". *Education* (20); 1979: 105-15.

EDUCATIONAL PSYCHOLOGY

Leontyer, Alexei. "Intensive learning without sensations". *Prospects* 10(4); 1980: 392-402.

Sansanwal, D. N. and others. "Facilitation of creative thinking abilities through transcendental meditation", *Journal of Indian Education* 6(3); Sept 80: 9-13.

Von Engelhardt, Michael. "Problems of pupils' learning motivation and their participation in the teaching process: Teachers' interpretations and attempts to solve the problems". *Education* (20); 1979: 39-52.

EDUCATIONAL SOCIOLOGY

Debe, S. C. "Educating weaker sections". *University News* 19(15); 1 Aug 81: 413-5.

Kamat, A. R. "Education and social change amongst the Scheduled castes and Scheduled tribes". *Economic and Political Weekly* 16(31); 1 Aug 81: 1279-84.

Skrimshire, Angela. "Community schools and the education of the 'Social individual". *Oxford Review of Education* 7 (1); 1981: 53-65.

EDUCATIONAL PLANNING

Vulgamore, Melvin L. "Planning. The University of Richmond experience". *Educational Record* 62(2); Spring 81: 55-7.

EDUCATIONAL ADMINISTRATION

Cookson, Clive. "Well-forged links that should outline the scepticism". *Times Higher Education Supplement* (460); 28 Aug 81: 7.

Caltung, Johan. "On the structure and function of transnational universities". *Prospects* 10 (4); 1980: 369-78.

Hara Gopal, G. "Student's participation in educational administration: A viewpoint". *Indian Education* 11(1-2); Apr-May 81: 71-5.

Stanfield, Rochelle L. "Tramwork for high schools and colleges". *Educational Record* 62(2); Spring 81: 45-7.

TEACHING

Leftwich, Adrian. "The politics of case study: Problems of innovation in university education". *Higher Education Review* 13 (2); Spring 81: 38-64.

McNamara, David R. "Teaching skill: The question of questioning". *Educational Research* 23(2); Feb 81: 104-9.

Rami Reddy, A Venkata and Subbarayudu, M. "Attitude of students towards English and regional media". *Quest in Education* 18(3); July 81: 205-19.

EDUCATIONAL RESEARCH

Bassey, Michael. "Pedagogic research: On the relative merits of search for generalisation and rtudy of single events". *Oxford Review of Education* 7(1); 1981: 73-94.

EDUCATIONAL TECHNOLOGY

Knigge-Illner, Helga. "The use of the media in university education". *Education* (20); 1979: 59-68.

EVALUATION

Dave, Ravindra H. "A built-in system of evaluation for reform projects and programmes in education". *International Review of Education* 26(4); 1980: 475-82.

Hsu, Louis M. "Dependence of the relative difficulty of true-false and grouped true-false tests on the ability levels of the examinees". *Educational and Psychological Measurement* 40 (4); Winter 80: 891-4.

Livingston, Samuel A. "Choosing minimum passing scores by stochastic approximation techniques". *Educational and Psychological Measurement* 40(4); Winter 80: 859-73.

Upasani, N. K. "Evaluating teaching performance in higher education". *Quest in Education* 18(1); Jan 81: 67-80.

ECONOMICS OF EDUCATION

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CLASSIFIED ADVERTISEMENTS

MARATHWADA AGRICULTURAL UNIVERSITY

PARBHANI-431402

Advertisement No. MAU/3/81

Applications in the prescribed form are invited on or before **20-10-1981** for the following posts in the pay-scale mentioned against each post. The selected candidate will be appointed to the post on tenure for a period of 4 years in the first instance. The period of tenure may be extended by another term of 4 years in the case of person found suitable for the post.

Sr. No.	Designation of the post	Pay-scale	No. of posts to be filled in
1.	Director of Research	Rs. 1500-60-1800-100-2000-125/2-2500	1
2.	Director of Extension Education	Rs. 1500-60-1800-100-2000-125/2-2500	1

1. Qualifications for the post of Director of Research

Essential

Bachelor's degree in Agriculture/Veterinary/Home Science/Agricultural Technology (Food Sciences) of this University or of any other University/Institute recognised as such by this University as equivalent thereto with atleast 45% marks in traditional system of examination or 2.00 C.G.P.A. in four point scale in trimester/semester of internal evaluation system of examination.

AND

Master's degree in Agriculture/Veterinary/Home Science/Agricultural Technology (Food Sciences) or post-graduate diploma of this University or of any other University/Institute recognised as such by this University as equivalent thereto with atleast 50% marks in traditional system of examination or 2.50 C.G.P.A. in four point scale in trimester/semester of internal evaluation system of examination.

AND

Doctorate degree in science related to Agriculture.

AND

10 years experience of teaching and/or research and/or extension education after postgraduation out of which atleast 3 years experience should be in a responsible post not below the rank of Professor or its equivalent.

AND

Record of Research as evidenced by published papers besides experience in technical/administration and ability to initiate and organise research, teaching and extension education.

Note: Experience relaxable in case of candidate with outstanding attainment.

OR

2. Bachelor's degree in Agriculture/Veterinary/Home Science/Agricultural Technology (Food Sciences) of this University or of any other University/Institute recognised as such by this University as equivalent thereto with atleast 45% marks in traditional system of examination or 2.00 C.G.P.A. in four point scale in trimester/semester of internal evaluation system of examination.

AND

Master's degree in Agriculture/Veterinary/Home Science/Agril. Technology (Food Sciences) or postgraduate diploma of this University or of any other University/Institute recognised as such by this University as equivalent thereto with atleast 50% marks in traditional system of examination or 2.50 C.G.P.A. in four point scale in trimester/semester of internal evaluation system of examination.

AND

Atleast 15 years experience of teaching and/or research and/or extension education after postgraduation out of which atleast 3 years experience should be in a responsible post not below the rank of Professor or its equivalent.

AND

Record of research as evidenced by published papers besides experience in technical/administration and ability to initiate and organise research, teaching and extension education.

Note:— Experience relaxable in case of candidate with outstanding attainment.

II. Qualification for the post of Director of Extension Education

1. Bachelor's degree in Agriculture/Veterinary/Home Science/Agricultural Technology (Food Sciences) of this University or of any other University/Institute recognised as such by this University as equivalent thereto with atleast 45% marks in traditional system of examination or 2.00 C.G.P.A. in four point scale in trimester/semester of internal evaluation system of examination.

AND

Master's degree in Agriculture/Veterinary/Home Science/Agricultural Technology (Food Sciences) or post-graduate diploma of this University or of any other University/Institute recognised as such by this University as equivalent thereto with atleast 50% marks in traditional system of examination or 2.50 C.G.P.A. in four point scale in trimester/semester of internal evaluation system of examination.

AND

Doctorate degree in science related to Agriculture.

AND

10 years experience of teaching and/or research and/or extension education after post-graduation out of which atleast 3 years experience should be in a responsible post not below the rank of Professor or its equivalent. He should preferably have recognised leadership, initiative, ability and publications in the field of extension education.

Desirable : Doctorate degree in related branch of extension education.

Note : Experience relaxable in case of candidate with outstanding attainment.

OR

2. Bachelor's degree in Agriculture/Veterinary/Home Science/Agricultural Technology (Food Sciences) of this University or of any other University/Institute recognised as such by this University as equivalent thereto with atleast 45% marks in traditional system of examination or 2.00 C.G.P.A. in four point scale in trimester/semester of internal evaluation system of examination.

AND

Master's degree in Agriculture/Veterinary/Home Science/Agricultural Technology (Food Sciences) or post-graduate diploma of this University or of any other University/Institution recognised as such by this University as equivalent thereto with atleast 50% marks in traditional system of examination or 2.50 C.G.P.A. in four point scale in trimester/semester of internal evaluation system of examination.

AND

15 years experience of teaching and or research and/or extension education after postgraduation out of which atleast 3 years experience should be in a responsible post not below the rank of Professor or its equivalent. He should preferably have recognised leadership, initia-

tive, ability and publications in the field of extension education.

Desirable : Doctorate degree in related branch of extension education.

Note : Experience relaxable in case of candidate with outstanding attainments.

Age : Maximum age limit is 45 years which is relaxable by 5 years for the candidates belonging to SC/ST/NT/DNT/OBC.

The age limit shall not apply to the persons already in the services of central/state Government/this University or any other University/Institute recognised by this University.

Application forms for these posts can be obtained from the Comptroller, MAU, Parbhani, at the cost of **Rs. 2/-** in the form of crossed IPO in the name of Comptroller, Marathwada Agricultural University, Parbhani and for these posts applications in the prescribed forms complete in all respects together with crossed IPO of **Rs. 8/-** in the name of Comptroller, MAU, Parbhani as registration fees should reach to the Registrar, MAU, Parbhani, latest by **5.00 p.m. on 20-10-1981**.

Incomplete applications in any form and those received after prescribed time and date will not be considered and no correspondence thereon will be entertained.

Reservation of posts for SC/ST/NT/DNT/OBC etc. is as per Maharashtra State Government Rules.

Request for form must specify the name and serial number of post accompanied by self addressed envelope atleast of the size 23 cm x 10 cm with **65 paise** stamps adhered to it.

Separate applications shall have to be made for separate posts. If considered necessary by the University the candidate shall have to appear for personal interview in the University office at Parbhani at candidates own cost

In the event of the large number of applications received in response to this advertisement, to avoid inconvenience to all concerned, at the discretion of the Vice-Chancellor, limited number of candidates only be invited for interview even though others not invited for interview might be satisfying the prescribed minimum qualifications.

Candidates already in the service of Central/State Govt./or any other organisation and those in the service of this University should necessarily apply through proper channel forward an advance copy to the undersigned. The advance copy should reach latest by **5.00 p.m. on 20-10-81**. The applications to be received through proper channel should reach latest by **5.00 p m. on 4-11-1981**. University will not be responsible for postal delay. The fact that the posts are advertised does not mean that necessarily all the posts will be filled in.

Canvarsing in any form will disqualify the candidate for employment under this University.

REGISTRAR

MADURAI KAMARAJ UNIVERSITY

MADURAI-625021

Notification No. 3/V/Advt/81

Applications in the prescribed form are invited for the following posts in the University.

1. **School of Tamil Studies and Indian Languages**
   One Instructor in Drama/Performing Arts
2. **School of Social Sciences**
   One Reader/Lecturer in Political Science
3. **Department of Education**
   One Lecturer in Education
4. **Department of Library and Information Science**
   One Reader in Library and Information Science
5. **P.G. Extension Centre, Jirnnelveli**
   One Lecturer in Organic Chemistry

Scale of Pay

Reader . .	Rs. 1200-50-1300-60-1900
Lecturer . .	Rs. 700-40-1100-50-1600
Instructor in Drama . .	Rs. 500-20-700-25-900

GENERAL QUALIFICATIONS

Reader : A first or high Second Class Master's degree and a Ph.D. degree in the relevant subject with not less than 5 years of teaching (PG courses) and/or research experience including guiding research at doctoral level of which atleast 3 years must be of a Reader or a position equivalent thereto.

Lecturer : Consistently good academic record with a first or high Second Class Master's degree and a Ph. D. degree in the relevant subject with not less than 3 years of teaching experience at PG level.

Instructor in Drama/Performing Arts Degree with a First or high Second Class—Diploma in Dramatics or a qualification equivalent to it or proficiency in Script writing, acting and producing Dramas—PG degree is preferred.

Essential : Knowledge of Tamil language and literature.

Appointment of persons on deputation will also be considered, if the candidates are found suitable and the employer is agreeable to spare the services.

The prescribed form of application and full details regarding qualifications and experience required can be got from the undersigned on requisition accompanied by (i) a self-addressed envelope with postage stamps to the value of **Re. 1.05** affixed thereon and (ii) State Bank of India challan (Madurai Kamaraj University Account No. 1) for **Rs. 10/-** or Demand Draft for **Rs. 10/-** payable at Madurai drawn in favour of the REGISTRAR IN-CHARGE, Madurai Kamaraj University, MADURAI-625 021.

MONEY ORDERS AND POSTAL ORDERS WILL NOT BE ACCEPTED.

The last date for receipt of filled in applications is **5th October 1981.** Applications received after the due date will not be accepted.

S. Santanagopalan
REGISTRAR IN-CHARGE

INDIAN INSTITUTE OF TECHNOLOGY

KANPUR

Advertisement No 23/81

Applications are invited for faculty positions in the following department/programmes from candidates having ability and aptitude for teaching undergraduate/post-graduate programmes, Research and Development in any of the following areas of specialization listed against each department/programme.

Pay Scale

Professor: Rs. 1500-60-1800-100-2000-125/2-2500

Asstt. Professor: Rs. 1200-50-1300-60-1900

Lecturer: Rs. 700-40-1100-50-1600

AERONAUTICAL ENGINEERING

Positions available: 2 (two) (likely to be three) Professor/Assistant Professor/Lecturer.

AREAS OF SPECIALIZATION

Aerodynamics including high speed experimental aerodynamics/design/fluid mechanics; aerospace structures including design/random vibrations/experimental methods in structures; flight mechanics; gas turbines/aerospace propulsion.

CHEMICAL ENGINEERING

Positions available: 10 (Ten) Professor/Assistant Professor/Lecturer

AREAS OF SPECIALIZATION

1. Process dyanamics/control, simulation, optimization and process engineering.
2. Chemical reaction engineering, chemical thermodynamics and transport phenomena.
3. Energetics, environmental pollution and control, petroleum processing, petro-chemicals, coal gasification, polymers, and biomedical engineering.

CHEMISTRY DEPARTMENT

Positions available: 7 (Seven) (likely to be eight) Professor/Assistant Professor/Lecturer.

AREAS OF SPECIALIZATION

Inorganic, (Nuclear, Organic, Physical, Theoretical and Biorelated areas (Inorganic, Organic and Physical) including inter-disciplinary areas associated with chemistry).

CIVIL ENGINEERING

Positions available:

9 (Nine) Professor/Assistant Professor/Lecturer

AREAS OF SPECIALIZATION

(i) Environmental Engineering
(ii) Geotechnical Engineering
(iii) Hydraulics and Water Resources Engineering
(iv) Structural Engineering
(v) Surveying and Photogrammetry
(vi) Transportation Systems Engineering.

ELECTRICAL ENGINEERING

Positions available: 15 (Fifteen) Professor/Assistant Professor/Lecturer

AREAS OF SPECIALIZATION

Communication and radar system, signal processing, devices, computer aided design, digital and linear circuit design, instrumentation and transducers, microprocessor application, control theory, real time computer control, numerical/process control, electromagnetic theory, high voltage engg.; power electronics and industrial drives, power systems (applications from outstanding candidates in other areas in Electrical Engineering may also be considered).

MATHEMATICS DEPARTMENT

Positions available: 3 (Three) Professor/Assistant Professor/Lecturer

AREAS OF SPECIALIZATION

Analysis algebra and algebraic number theory, graph theory, intuitionism, functional analysis, differential and integral equations, numerical analysis, mathematical bio-sciences, engineering and evironmental fluid mechanics including stability theory and tribology, operations research and statistics. However, preference would be given to the following specific areas:

Applied Functional Analysis (Operator theory with application to relevant physical-systems)

Bio-mathematics, Differential topology.

Engineering fluid mechanics including Tribology, Environmental Sciences (Environmental Biology, Pollution climatology, etc.)

Lie group theory/Ring theory with applications to physical systems.

Numerical Analysis (Finite Element, etc.)

Ordinary and Partial differenatial equation with application to physical systems.

Operation Research (Inventory control, resources management, reliability and information theory).

Stochastic Processes with applications to Physical systems.

Theory of distributions.

MECHANICAL ENGINEERING

Positions available: 13 (Thirteen) Professor/Assistant Professor/Lecturer.

AREAS OF SPECIALIZATION

1. **Manufacturing Science:** (Metal forming, computer-aided manufacture, numerically controlled machines, machine tool design, casting and welding)
2. **Design:** (Computer-aided design kinematics and dynamics, systems design)
3. **Controls:** (Fluidics, hydraulics and pneumatic controls, automatics controls)
4. **Solid Mechanics:** (Composite materials, experimental stress analysis, numerical techniques, biomechanics).
5. **Fluid Mechanics:** (Computational fluid dynamics, turbomachinery).
6. **Thermal Sciences:** (alternate energy sources, thermal environmental control, I.C. engines).
7. **Industrial Engineering:** (Industrial organization and management production planning and control, work study).

METALLURGICAL ENGINEERING

Positions available: 5 (Five) Professor/Assistant Professor/Lecturer

AREAS OF SPECIALIZATION (for Professor's post)

Metallurgical aspects of corrosion and coating technology, dislocation theory, crystal growth and characterization, directional solidification, superplasticity and high temperature deformation, phase transformation, electron microscopy, physical chemistry of extractive metallurgy.

For Assistant Professor/Lecturer (a) Extactive metallurgy (with emphasis on momentum, heat and mass transfer, chemical metallurgy) (b) Physical metallurgy (Foundry, deformation processing, high temperature alloys)

Basic degree in Metallurgy/Metallurgical Engineering is desirable.

PHYSICS DEPARTMENT

Positions available: 3 (Three) (One or more of them may be shared with other departments/Inter-disciplinary programmes), Professor/Assistant Professor/Lecturer.

AREAS OF SPECIALIZATION

While professorial positions are expected to be filled in the area of theoretical or experimental, atomic, molecular or solid state physics, the positions at the level of Lecturer/Assistant Professor are sought to be filled with persons with expertise in experimental solid state physics, preferably amorphous state.

MATERIAL SCIENCE PROGRAMME

Positions available: 2 (Two) Professor Assistant Professor/Lecturer (preferably appointments will be made between the Programme and any other appropriate department either Engineering or Science).

AREAS OF SPECIALIZATION

1. Dielectric and Magnetic Materials
2. Composite Materials
3. Amorphous Materials
4. Electronic Materials including those for Solar Energy Conversion
5. High Strength Materials.

INDUSTRIAL AND MANAGEMENT ENGINEERING PROGRAMME

Positions available: 2 (Two) Professor/Assistant Professor/Lecturer

AREAS OF SPECIALIZATION

1. Management Information Systems
2. Work Design and Human Factors Engineering
3. Operations Management
4. Marketing and Distribution Systems
5. Managerial Economics and Financial Management
6. Analysis and Design of Large Scale Systems

NUCLEAR ENGINEERING AND TECHNOLOGY PROGRAMME

Position available: 2 (Two) Professor/Assistant Professor/Lecturer

AREAS OF SPECIALIZATION

1. Radioisotope Applications
2. Fast Reactors (Physics and Engg. aspects)
3. Reliablity and Safety Analysis
4. Nuclear Chemical Engineering

QUALIFICATIONS AND EXPERIENCE FOR VARIOUS POSITIONS ESSENTIAL FOR ALL POSTS

PROFESSOR

Doctorate degree with good academic record and at least eight years of professional experience of good quality outside the work for the degrees.

OR

Master's degree in Engineering with good academic record and at least fifteen years of Industrial experience with brilliant record outside the work for the degree.

The candidates must have a good academic background, have ability for teaching and independent research as evidenced by good contributions by way of publications of quality in journals of repute or developmental project works of merit in any one of the aforesaid areas of specialization.

ASSISTANT PROFESSOR

Doctorate degree with good academic record and at least three years of professional experience outside the work for the degree.

OR

Master's degree in Engineering with good academic record and at least seven years of Industrial experience outside the work for the degree.

LECTURER

Doctorate degree with good academic record and adequate research experience resulting in research papers of quality outside the work for degrees.

OR

M. Tech. with good academic record and at least three years of teaching research/industrial experience with good record outside the work for the degree.

FOR ALL THESE POSITIONS BASIC DEGREE IN RESPECTIVE BRANCH IS PREFERRED.

The Institute has well equipped laboratories and also Biosystems Laboratory. Laser Laboratory. There is well established Computer Centre having DEC 10, IBM 1800, PDP-1 Systems with interactive graphic terminals and TDC-316, and a group of experienced programmers. The Institute has a well stacked Library with more than 2,17,000 volumes and 1,800 periodicals. The other facilities include 2 MeV Van-de-Graaff accelerator, 4096 multi-channel analyser and radiation detection equipments, liquid nitrogen, spectrometers, X-ray plant, Glass Blowing Shop, Crystal growth facility, Design and Development Cell, Precision Machineshop, Electron Microscope, besides a large workshop for fabrication of specialised research apparatus.

The Campus facilities include a Primary and Higher Secondary School, a Health Centre, Swimming Pool, Shopping Centre, Gliding Club and Housing accommodation.

There is an Advanced Centre for Electronic Systems in the Institute attached to the Department of Electrical Engineering. The Centre carries out unclassified research and development work in several areas such as Communication, Radar, Signal and Image processing and Instrumentation Systems sponsored by Government agencies and industry. An Advanced Centre for Material Science has been established recently at the Institute by the Government of India to undertake frontier of research in the development of materials of National importance.

The posts are permanent and carry retirement benefits in the shape of CPF-cum-Gratuiy Scheme, GPF-cum-Gratuity-cum-Pension or CPF Scheme as may be opted according to rules. The age of retirement is 60 years. During the first year, the appointment will be on probation. Besides pay, posts carry allowances according to the Institute rules which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare from the place of stay to Kanpur and back by the shortest route.

In the category of Lecturer, one post will be reserved for Scheduled Caste/Scheduled Tribe candidates in each of the above departments/programmes. In the event of non-availability of suitable SC/ST candidate the reserved posts would be treated as dereserved.

In the category of Lecturers, special consideration will be given to disabled persons. possessing the requisite qualifications and whose handicap will in no way be impediment to their assigned duties.

Applications from within India must be made on prescribed form obtainable free of charge from the Registrar of the Institute by sending a self-addressed unstamped envelope of 25 cm × 10 cm size. Applications should be accompanied by a postal order for **Rs. 7.50 (Rs. 1.87 for SC/ST candidates)**.

Applicants who are employed in a Government/Semi-Government Organization or Institutions should send their applications through proper channel, else they will be required to produce a 'NO OBJECTION CERTIFICATE' from their employers at the time of interview.

Applicants from abroad may apply on plain paper enclosing a complete Bio-data and names of three Referees from whom reference letters may be obtained.

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016, U.P. India on or before **November 30, 1981**.

Higher Education in the U.S. and India

(*Continued from page 532*)

for long unless they are attached closely to more theoretical concerns.

One other point needs to be made about the matter of relevance. As the number of students have increased, larger and wider cross sections of Indian and American societies have been admitted to their universities and many of today's students are first generation entrants without any family tradition to prepare them for the rigours of their studies. Many are from socially deprived groups and the immediate utility of their university experience has to be demonstrated to them and to their families. In the United States this has been most vividly witnessed by the demands of black students for courses that would help them improve the slums or which would give them cultural identity. In India there is now a slowly growing demand for courses relevant to rural life and life in urban slums.

The issue of relevance is, as I have said earlier, a very complex one. Questions like relevant to whom? and for what? inevitably arise. Obviously higher education cannot think of itself merely in the role of supplying what those in authority regard as relevant or useful for the day. Both questions go to the heart of the fundamental philosophical question concerning the mission of higher education in society. Preoccupation with what is immediately relevant must not be allowed to cloud the vision regarding the classical and abiding concerns of higher education which are liberal and humanistic.

I have attempted a comparative sketch of two of the free world's largest public enterprises viz. the system of Higher Education in the U.S. and India because of my conviction that although national experiences are never wholly transferable, there is a lot that can be learnt by working at the problems of the other and the efforts made to tackle those problems.

[*Text of the John F. Kennedy Memorial Lecture delivered by Prof. Ram Joshi at the Indo-American Society in Bombay.*]

UNIVERSITY OF ROORKEE
ROORKEE

Advertisement No. DRIL/9

Dated : September 10, 1981

Applications on prescribed forms obtainable from the Dean, R&IL either personally or by sending a self addressed envolope (9″×4″) with 90 paise postage stamps alongwith required application fee of Rs. 10/- for the post of Professor, Rs. 7.50 for Reader and Rs. 5/- for other posts through Bank Draft payable to the Registrar, University of Roorkee, Roorkee, U.P. or paid in cash at the University counter, are invited for the following posts in the Department of Earthquake Engineering against Indian National Strong motion instrumentation network—funded by Deptt. of Science and Technology, Govt. of India for 3 years. Higher starting salaries in the grade may be offered to candidates depending on their qualifications and experience, Residential accommodation, if available, will be offered at 10% of the salary or standard rent, whichever is less. Contributory Provident Fund and Dearness Allowance will be admissible as per University rules. The age of superannuation is 60 years. Applicants should not be above 55 years. Applications complete in all respects should be sent to the Dean, R&IL University of Roorkee so as to reach him on or before **20-10-1981.** Candidates in employment are required to send their applications through proper channel. Applications received late/incomplete may not be entertained.

1. **Professor** : One Post (Temporary)
   Scale of Pay: Rs. 1500-60-1800-100-2000-125/2-2500.

Qualifications

Essential : (a) Doctor's degree in Seismology/Soil Dynamics/Structural Dynamics/Electrical Engg/Electronics and published work in instrnmentation relevant to Earthquake Engg and Vibration Measurements, (b) Experience in guidance of research (c) 12 years experience of teaching/research/design and industry in appropriate field with atleast five years in teaching/research.

2. **Reader**: Two Posts (Temporary)
   Scale of Pay : Rs. 1200-50-1300-60-1900.

Qualifications

Essential : (a) Doctor's degree with Master's/or Bachelor's degree with published work of Ph.D. standard in Civil Engg/Earthquake Engg/Geology/Geophysics / Seismology Electrical Engg/Electronics/Instrumentation. (b) 7 years Experience of teaching/research/design and industry in appropriate field with at least two years in teaching/research.

3. **Lecturer**: Two Posts (Temporary)
   Scale of Pay : Rs. 700-40-1100-50-1600.

Qualifications

Essential : (a) A Master's degree in Civil Engg/Earthquake Engg/Geologa/Geophysics / Seismology/Electrical Engg/Electronics/Instrumentation with good academic record. (b) Two years professional experience.

4. **Assistant Engineer** : One Post (Temporary)

Scale of Pay : Rs. 550-30-700-EB-40-900-EB-50-1200.

Qualifications : Bachelor's degree in Electrical/Electronics/Mechanical Engg. or M.Sc./M. Tech in Physics/Applied Geology / Geophysics / Instrumentation with two years research experience/practical experience in Design, Febrication. Maintenance of Strong Motion Instrumentation.

5. **Senior Scientific Assistant** : Two Posts (Temporary).
   Scale of Pay : Rs. 500-25-700-EB-40-900-EB-50-1000.

Qualifications : Bachelor's degree in Electrical / Electronics/Mechanical/Civil Engg. or M.Sc./M.Tech. in Geophysics/Applied Geology/Physics/Instrumentation with experience in handling of vibration measuring instruments.

6. **Assistant Project Officer** : One Post (Temporary).
   Scale of Pay : Rs 500-25-700-EB-40-900-EB-60-1000.

Qualifications : (a) A good Master's degree in Arts/Science (ii) Should have atleast 10 years experience of the job requirement.

Job Requirement : To coordinate between various authorities for Strong Motion Field Stations in Himalayan Belt. Collect and transmit data and handle correspondence independently and deal establishment, budget, annual account, stores and purchase cases.

Note

(a) Selected candidates may be required to be posted at Gauhati or Shillong.

(b) Educational Qualifications relaxable for all the above posts in case of candidates having long experience in relevant field.

(c) Candidates desiring to join on deputation terms will also be considered for selection.

(d) Those qualifications will not apply to deputationists whose suitability for the post will be judged on the basis of the experience and accomplishments.

(e) Time spent in pursuing the Master's degree courses in Engg and towards Doctor's degree in all cases will count towards the experience requirements,

(f) Number of posts shown above may change at the time of selection.

(g) Candidates lacking in required experience for any particular post may be considered for appointment against a post in next lower scale of pay.

(h) Other things being equal, preference will be given to Scheduled Castes/Tribes candidates from amongst the external candidates ?

(i) Single rail/bus fare both ways payable to the candidates in India for journey over 175 kms by shortest available route.

Dr. O N. Chaturvedi
REGISTRAR

ANNAMALAI UNIVERSITY
ANNAMALAINAGAR

Applications are invited for filling up of the following posts, in the prescribed form obtainable on payment by of Rs. 5/- to the Registrar, Annamalai University, Annamalainagar-608 002 by Cash/Money Order/Postal Order (not refundable). Completed application forms (with five additional copies) should reach the Registrar on or before **20-10-81**. The envelope containing the application should be superscribed as "Application for the post of.................................."

S. No.	Name of post	No. of osts
1.	Director of Correspondence Courses and Continuing Education	1
2.	Joint Director of Correspondence Courses and Continuing Education	1

Scale of Pay

1. Director : Rs. 1500-60-1800-100-2000-125/2-2500 with usual allowances
2. Joint Director : Rs. 1200-50-1300-60-1900 with usual allowances

QUALIFICATIONS

Director and Joint Director }

Essential

1. Master Degree with First or High Second Class
2. Ph.D.
3. Teaching and administrative experience alteast for 10 years including experience in planning and execution in universities or institutions of higher learning.
4. Knowledge of Printing is essential.

Preferable

Publications

E. Thangavelu
REGISTRAR IN-CHARGE

GUJARAT AGRICULTURAL UNIVERSTY

SARDAR KRISHINAGAR 385506

Advt. No. 5/81 **Date : 15/9/81**

NEEDS

The Gujarat Agricultural University is in need of an outstanding scientist having adequate academic and research background and experience in the field of agriculture, botany and plant breeding particularly on cotton for a two years assignment for a Chair for research in cotton.

The scientist is likely to be posted at Surat. No age limit is prescribed. Scientists who have retired but enjoy sound health are welcome to apply. Persons who are not already holding the post of Prof. or its equivalent are not likely to be considered. Deserving persons will be paid a consolidated honorarium of Rs. 2250/- p.m.

The applications with full bio-data should reach the Registrar, Gujarat Agricultural University, Sardar Krishinagar (Dantiwada) Dist. Banaskantha (Gujarat) before **5-10-1981**.

REGISTRAR

PANJAB UNIVERSITY

CHANDIGARH

Advertisemeut No. 9/81

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh, alongwith postal order of Rs. 10/- by **16-10-1981**. Fourteen days extra time is permissible to persons who have to submit their applications from abroad.

1. **Professor (Rs. 1500-60-1800-100-2000-125/2-2500)**
   Zoology-1, Bio-Chemistry-1.
2. **Readers (Rs 1200-50-1300-60-1900)**
   Chemistry-1 (Inorganic Chemistry) (temporary, leave vacancy), Microbiology 2, Pharmaceutical Sciences-1 (Pharmaceutics).
3. **Lecturers (Rs. 700-40-1100-50-1600)**
   Bio-Physics-3, Pharmaceutical Sciences-2 (Physiology-1, Pharmaceutical Chemistry-1) Bio-Chemistry-2, Physics-1 (Bubble Chamber Programme), Chemistry-1 (Inorganic) (temporary, but likely to be permanent), Lecturer-cum-Microanalyst-1 (temporary, leave vacancy), Geology-2 (Permanent-1, temporary, but likely to be permanent-1).
4. **Research Associate**
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Candidates for the posts of Professors and Readers who do not possess a doctoral degree are required to submit 10 typed/cyclostyied copies of brief resume of their published work. 15% posts of Lecturers will be reserved for the members of the Scheduled Castes and 3% for the members of the Scheduled Tribes, but these will be filled up by others if no suitable Scheduled Castes/Scheduled Tribes applicant is available.

Persons already in service should route their applications through proper channel. Incomplete forms and those received after due date will not be entertained. Attested copies of Certificates in support of qualifications for Matriculation/School leaving, graduation as also post graduate examinations be attached to the applications. Serving employees, may however, send their applications on the prescribed proforma, direct to the University. They may route another copy through their Departments. They will be allowed to present themselves for interview only on the production of a 'No Objection Certificate' from their employers. Canvassing in any form will disqualify the candidate.

Application forms alongwith detailed qualifications can be obtained from the Cashier, Panjab University, Chandigarh personally on payment of **Rs. 2/-** or by making a written request to the Finance and Development Officer, Panjab University, accompanied by self addressed stamped envelope of 23 x 10 cms and a postal order for **Rs. 2/-** drawn in favour of the Registrar, Panjab University, Chandigarh.

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FOR DETAILS SEE INSTRUCTIONS FOR CANDIDATES ENCLOSED WITH THE APPLICATION FORM.

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CHANDIGARH

Advertisement No. 10/81

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Application forms alongwith detailed qualifications can be obtained from the Cashier, Panjab University, Chandigarh, personally on payment of Rs. 2/- or by making a written request to the Finance & Development Officer. Panjab University, accompanied by self-addressed stamped envelope of 23 x 10 cms. and postal order for **Rs. 2/-** drawn in favour of the Registrar, Panjab University, Chandigarh.

Note: FOR DETAILS SEE INSTRUCTIONS FOR CANDIDATES ENCLOSED WITH THE APPLICATION FORM.

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C.F.T.R.I., MYSORE
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Education for National Integration

Future of University Education

Curriculum Development and the Community

Foreign Students' Education

Tamil University

Energy Allocation for Farm Sector

CLASSIFIED ADVERTISEMENTS

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RANCHI

Advertisement No. 5 of 1981

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Application forms can be had, free of cost, from the University office, in person, or by post by sending a self-addressed envelope (23x10 cm) with postage stamp worth 0.50 paise affixed thereon with the words "Application form for teaching posts in Ranchi University" superscribed on it to the Deputy Registrar (II) of the University. In case, the candidates are not able to get the prescribed application form they can apply even on plain paper mentioning all details, as an advance copy.

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No T.A. or D.A. will be paid for appearing at the interview or for joining the post, if selected.

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D.P. Varma
REGISTRAR

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The Banaras Hindu University invites nominations for this award for the year 1981-82. The Award shall be given to a person whose work in the field of Cancer studies, performed during the last five years, is adjudged as best. This award carries a cash prize of Rs. 10,000/- and a Bronze Medal The awardee will be required to come to the Banaras Hindu University, Varanasi, and deliver an oration at the Institute of Medical Sciences. The travelling expenses of the awardee shall also be borne by the University.

Nominations along with copies of the Bio-data in *triplicate* of the candidates and a set of his publications should be sent by the Head of the Institution of the nominee to the Registrar (Academic), Banaras Hindu University, Varanasi-221005. Specific mention should be made of the work done in the field of Cancer research along with the published evidence of the same. The last date for receipt of nominations will be **31st October, 1981.**

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NAGARJUNANAGAR

522 510

Advertisement No. NUN/ESTT/TS/81-82 **Dated 23.09.1981.**

Applications are invited in the prescribed form for the following posts in the University Service on or before **24 10.81**.

S.No.	Post & Dept.	No. of Posts	Specialisation desirable
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1.	Reader in Chemistry	One	Organic Chemistry or Analytical Chemistry.
2.	Reader in Statistics	One	Operational Research/ Econometrics/any other area of applied statistics.
3.	*Lecturer in Statistics	One	——
4.	Lecturer in Zoology (temporary)	One	Limnology and Fishery Science Or Aquaculture or Fish Breeding.
5.	Lecturer in Economics	One	Training in Mathematical methods.
6.	Reader in Law	One	Taxation/Company Law.
7.	**Lecturer in Law	Two	Torts/criminal law/administrative law / jurisprudence/ prosperity.
8.	Reader in Political Science and Public Administration	One	——
9.	***Lecturer in Political Science and Public Administration.	One	——

* Reserved for ST.
** Reserved One for SC and the other for ST.
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SCALES OF PAY

Reader : Rs. 1200-50-1300-60-1900.
Lecturer : Rs. 700-40-1100-40-1600.
All the above Posts carry D.A. etc. at the University Rates.

The Prescribed application form and other particulars can be had from the Registrar, Nagarjuna University, Nagarjunanagar 522 510, A.P. on payment of **Re. 1/-** by State Bank of India Challan/D.D./ * Crossed Indian Postal Order of the said value drawn in favour of the Registrar, Nagarjuna University, Nagarjunanagar-522 510 A.P. (*Payable at the Nagarjuna University Campus Post Office only).

The University reserves to itself the right to fill or not to fill any or all the above posts and to appoint candidates to posts lower than the ones for which they have applied.

Candidates called for interview have to attend the same at their own expenses.

K. Anjanappa
REGISTRAR

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Editor : ANJNI KUMAR

Future of University Education

Madhuri R. Shah*

Information Service
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C.F.T.R.I., MYSOR

Ours is a country of colourful legends. Education has been so widely interpreted by the laity that one may be tempted to seek the analogy of the blind men and the elephant. But this would not be correct. The continuing interaction with economy has invested it with an un-ambiguous purpose today, specially in the sphere of higher education.

University education is now meant to subserve national goals. It has to promote the weal and well-being of the community which sustains it, through heavy subsidies. In fact, more than a decade ago, the Education Commission had warned that "the naive belief that all education is necessarily good, both for the individual and for society, and that it will necessarily lead to progress, can be as harmful, as it is misplaced".

Let me begin at the beginning. The very title of this talk, the future of university education, would seem to beg the question. If the educational horizon is tinged with grey there are reasons for it. The University has not proved the open sesame, which everyone imagined.

It was dogged by a value-system which the British so zealously guarded. It was the product of a philosophy which excluded an independent India. The plant that grew out of this alien corn was hybrid and fragile.

The system, however, withstood the tremendous changes around it, in the wake of the Partition. On the one hand, it produced a stream of scientists and technologists who came to constitute the third biggest pool of its kind in the world. On the other, it flooded the country with unwanted graduates who were short on techniques, but long on expectations.

This was the beginning of a series of inner contradictions which have plagued the university system over the years. Eighty per cent of the seats in higher education were taken by the top 30 per cent, income-wise. Yet, universities and colleges continued to multiply, further perpetuating the elitism. The formal system of education continued to expand despite its wastage. Social objectives; were more prominent in their absence than acceptance. The individual always loomed bigger than the community.

However, the winds of change have begun to blow in the universities, albeit softly. One happy sign of it was evident at the recent Vice-Chancellors' Conference, which drew the largest attendance so far. The acceptance of change was unanimous. There was also an unmistakable desire for uniformity in

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**Chairman, UGC, New Delhi.*

the structure and better coordination. The Vice-Chancellors seemed too ready to move with the times.

Analysing the problems of the university system vis-a-vis the needs of the community, the UGC has evolved a policy frame for the development of higher education over the next 10 to 15 years. It encompasses many radical points of departure from the present system which have gradually come to be accepted by the academic community.

First and foremost is the identification of the new functions of the universities in the national set up. The most important among these is the need to assist the society in the formulation of national objectives and evolve programmes for their realisation. Concurrent to these is the requirement that higher education has an important role to play in a developing country like ours.

The University system of the future will thus be three-dimensional. The third dimension, besides the age-old objectives of teaching and research which has been added, is of extension. Extension has generally come to be accepted as the third arm of the university system. The need to integrate it with the curriculum is simultaneously gaining ground.

A graduate of tomorrow will, therefore, be judged as much by what he has done for himself as for the community. This should prove the beginning of the end of the old value system in which proficiency in English was apparently more important than an understanding of one's own cultural heritage. It is not that English will be given up in the new scheme of things. But it will figure more as a vehicle of knowledge than a status symbol.

Equally important for the future is the task of making the educational system both dynamic and flexible. A consensus has already emerged out of the Vice-Chancellors' Conference for restructuring courses at the undergraduate stage, according to a time-bound programme. The redesigned courses should be relevant and significant, not merely to the students but also to the nation as a whole, and help in bringing about social transformation and national development.

The new structure will rest on the four pillars of foundation courses, core courses, applied studies, and involvement in a programme of national or social service. The new courses will also cover emergent and inter-disciplinary areas of experience.

The Education Commission had estimated that by 1986, at least a third of the total enrolment in higher education should be provided through a system of correspondence courses and evening colleges. There is no doubt that both these channels of non-formal education are going to attract increasing numbers in the years to come. For one thing, they will reduce the pressure on the formal system, conserving the scarce resources for other gainful purposes. In addition, by bringing higher education to one's door step, they will help improve his in-service employability without much hassle.

"Distance" education in India, however, still remains a poor cousin to the formal system and one of the important steps taken by the UGC is to try establish parity between the two through a series of far-reaching guidelines circulated to universities.

One of the 'red herrings' of the university system is the severe regional disparities in the sphere of higher education, further compounding the problem of expansion. The UGC is unequivocally against any unplanned proliferation of universities and colleges. But it would not like educationally backward areas to be deprived of these institutions, which will only increase the imbalance. At the same time, the UGC wants the disadvantaged groups to be brought up through fellowships and stipends, which are already operational. The progress of these schemes will be constantly monitored. But there will be no dilution of standards in promoting the interests of the scheduled castes and the Scheduled Tribes.

Indeed, promotion of quality will be one of the hall-marks of the UGC's programmes for the development of university and college education in the Sixth Plan. Most of the undergraduate students today are in affiliated colleges which number about 4500. In the postgraduate sphere, about 50 per cent of the students are in colleges, while in research only 11 per cent of the scholars are outside the university faculties.

The UGC has, therefore, decided that in the Sixth Plan, the accent in the development of undergraduate education will be on colleges and that in postgraduate education and research, on universities, as most of the colleges are poorly equipped in this sphere.

All education in commonly regarded as education for the future. However, it is only in the last few years that higher education has even begun to catch up with the present.

The universities of today are straight-line projections of the machine-model colleges and universities of the industrial era. However, through its own technology and its techniques for accelerating technological innovation, the industrial system has begun to tranform itself. A new cultural system is emerging. The new technologies—electronic, biological, nuclear and solar technologies—are not only dramatically altering developed societies, but further accelerating the rate at which new changes come about. In less than a half century, the airplane changed the rules of warfare, politics and business in the world. How far away is the fusion of man and machine, now that artificial organs, hormone producers and transistorized brain supplements are a reality in the laboratory?

Yet, higher education in our country is neither changing rapidly enough to keep pace nor producing young people capable of moderating and shaping the forces of change.

The primary goals of teaching are still to transmit an organised body of knowledge to the student and help him to develop critical judgement. Yet, the student finds it harder and harder to cope with the complexity and rapid change that surrounds us. He is left to solve for himself, without institutional support the formidable problem of integrating his learn-

(*Continued on page 569*)

Curriculum Development and the Community

S. C. Bhatia*

The concept of curriculum development draws support from the fundamental commitment of a society to plan and utilize education as an instrument for national development through a process of altering existing social relationships. The choices thus made to fulfil priorities in national development are deliberate and duly-debated in a democratic society. Education is one of the *sectors* and *strategies* in the process of national development aiming at an equal access to facilities for all people. As a *strategy*, it also aims to provide additional facilities to people with certain disadvantages again with the intention of enabling them to overcome these and meaningfully partake of the facility of equal opportunity. As one *sector* of development, education seeks to plan for the growth of its components through a process of teaching, research and extension. These choices are made by all of us consciously or unconsciously; these choices reflect the kind of educational experiences we provide for our youth.

> "These choices range from the selection of the very goals the educational institutions seek to attain and the relations maintained with the greater community, to organisation of educational programmes, the methods employed, the materials used and the provision made for differences among pupils. The quality of learning experiences is derived from the choices." The NCERT, in their approach paper on the curriculum for the ten-year school, have recognized that "the curriculum, by way of its objectives, content and methodology, has to serve the current and emerging needs of the Indian society and the citizen, and these also need to be spelled out so that the ideas may be translated into action."

A broader view of the term "community" need to be envisaged with a view to including in it students, teachers and administrative staff within the institution and those outside the institutions.

Curriculum development in a University system, or for that matter any stage of the educational system, needs to viewed in a wider perpective with a view to taking stock of the entire set of educational experiences provided by the institution/s. This would include among other aspects, admission procedures, course planning, teaching metholcdogy, evaluation techniques, the dimensions of student welfare, etc. An institution has to consider whether any of the above aspects of curriculum development tends to deny access to the use, of its facilities by any section of the population. To the extent that such denial is baded on the limited resources available with the nation in general and the institution in particular, the planners' attention to this aspect and promoting public awareness. The strategies chosen for national development may also view favourably the question of selective admission to institutions of higher education.

However, an institution, within the context of its available resources, can initiate a large number of measures which would legitimately fall within the purview of curriculum development. Some of the specific areas of action have been listed below:

(i) to initiate a process of upgrading/change in its courses, teaching methods, evaluation strategies and student welfare measures for its existing students population;

(ii) to plan refresher/orientation programmes/workshops/seminars/symposia for its faculty with a view to an ongoing appraisal of teaching-learning styles;

(iii) to plan programmes for the faculty and administrative personnel in an orientation towards examination technology in general and subject-specific examination technology in particular; and

(vi) to define the dimensions of student welfare in a manner that these take a comprehensive view of the education of the youth in terms of his entry, preparation for certificate/diploma/degree and for an identified set of professions, and a development of the socio-cultural aspects of life.

The University Grants Commission, in their policy-frame on Higher Education, have recognized three functions of a University; teaching, research and extension. While the first two functions have been concretized in terms of courses and programmes, the third function is yet to be given a systematic representation within the university system. A whole lot of activities have been undertaken by various universities colleges largely with a view to providing service and education for the community, and educational enrichment for the youth in educational institutions. No attempt has so far been made to distinguish between the service dimension of an activity/experience and the educational dimension. Another characteristic of such activities in their marginal and voluntary status within the educational system. Extension activities are at best being viewed as extra-curricular or co-curricular without any significant representation of such work in the curricular stream. A few universities have, however, devised incentives for participation in extension activities; some of these incentives have found their way on the curricular stream as well in the form of a percentage of marks counted forwards the certificate/diploma/degree.

Such incentives have often given rise to reactions within the academic community which indicate that an evaluation of such activities within the curricular stream is likely to result in certain distortions in the

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**Coordinator, Adult and Continuing Edn. Cell, University of Delhi.*

validity of the process of certification. A time has come when the universities and colleges must relax some of their formal rigidities and begin to view the provision of integrated educational experiences for their students teachers and members of the community without any necessary certification. So long as extension activities are prized when accompanied by certification, their very use to the community would tend to become a secondary question. The universities and colleges ought to think in terms of providing educational experiences in the form of a parallel stream without emphasizing, in the first instance, any certification.

The idea of such a curriculum development strategy is based on the belief that the existing physical, manpower, and technocratic resources in universities and colleges could be optimally utilized for providing additional educational experiences for the student population and new educational experiences for those in the community who have not had access to such resources for one reason or the other. The operative dimensions of such a belief would involve provision of additional resources on an incentive-basis. The following steps could be undertaken:

(i) to plan courses helping in the process of entry to professions;
(ii) to plan remedial coaching programmes for students belonging to weaker sections of society;
(iii) to plan enrichment courses for segments of society within the university/college and outside in social and cultural aspects;
(iv) to plan educational support courses for parents with a view to enabling them to participate in the education of their children;
(v) to plan educational experiences for teachers and social workers for handicapped children;
(vi) to plan programmes for an upgradation of instructional work in primary and secondary schools;
(vii) to plan educational experiences for the surrounding community with a view to enabling people to act as enlightened consumers.

This list could probably be extended to meet the needs of any segment of population. The choice here is to be made by the institution through a process of an assessment of the local needs and local resources.

While Universities and colleges could use their existing physical resources during hours that these are not in active use, incentives may have to be built in the process of planning such programmes for manpower and technocratic resources. The existing building facilities could for example be used in the early morning hours or the afternoon/evening hours for conducting some of the above stated courses/activities. What is being posited here is a notion of early morning, afternoon/evening Colleges offering non-degree courses with the help of existing manpower. Additional manpower could be asked for wherever absolutely necessary. The existing manpower should be given incentives to participate in such programmes. The operational success of this idea may depend on the conceptual clarity in the administrator's mind, his commitment to extending benefits to the larger community and the degree of motivation in the institutional staff.

Educational institutions need to take certain policy decisions whereby continuing education of their students, teachers and employees is, in the first instance, viewed as obilgatory. It should be obligatory on the Administration to provide for orientation in teaching-learning styles and evaluation once in at least three years. The Administration could provide duty leave and other facilities for participation in such programmes. Similar provisions for meaningful programmes should be available for the administrative staff as well.

Educational institutions must also plan programmes and activities which enable the youth to prepare for the post-degree period either through a process of entry to professions or through a process of self-employment. A large number of commercial establishments have hitherto been providing such services charging exhorbitant costs. Universities and colleges could provide many such activities without incurring substantial costs on physical resources. While most such programmes and activities could be self-financed through tuition and other fees charged from the participants, the weaker sections of society could be supported through a system of State and other subsidies.

Incidentally, the tasks involved in the process of curriculum development should not be seen merely in terms of providing additional courses and other services. The educational system must begin to critically recosider the relevance of its regular (degree-based) teaching courses, teaching techniques, evaluation procedures and the dimensions of student welfare. The community-oriented in higher education must reflect a movement of inward change; in the absence of such a change, most efforts would again tend to acquire a marginal status.

Take, for example, the concept of student welfare in educational institutions. It seems to vary from institution to institution. Institutions training potential manpower for trade and industry often receive employment inquires from employers; this often prompts them to set up placement services. Institutions training manpower for unspecified jobs rarely have such services. The students are largely left to plan for themselves. Most institutions seem to concentrate on a piecemeal planning for elections to Students Unions and other bodies and providing some co-curricular activities. Such activities often attract attention of a limited number of students often for a limited period of time. The planning for student welfare activities thus gives the impression of attending to a limited segement of the student population. In fact, most educational institutions do not seem to have any short-term and long-term plan for the participation of all or a large majority of students in the process of decision-making in academic aspects. A handful of students have managed to force closure of educational institutions in different parts of the

(*Continued on page 566*)

Education for National Integration

S. K. Mitra*

The question of national integration has engaged the minds of people with a view to strengthen India as a nation. There has been, of late several incidents, which have brought to the fore the importance of national integration.

Of late the education scene itself has been disturbed over admissions, examinations, elections, to students' bodies, teachers associations and so on. The question of values which the students and teachers should inculcate, and which should influence others in the community, is also receiving attention at the highest level.

The Education Commission, which had worked during the period 1964-66, had made some recommendations, which were broadly accepted by the Government of India and a statement was issued by the Government on National Policy on Education in 1983. In this policy siatement, it is mentioned that the educational system must produce young men and women of character and ability committed to national service and development. Only then will education be able to play its vital role in promoting national progress, creating a sense of common citizenship and culture, and strengthening national integration. This was a very important policy statement underlining the relationship between education and national integration.

The report of the Education Commission mentions some problems of the national development in its first chapter, and one of the problems, which the Commission considered relevant for education, is social and national integration. The report says, "The growth of local, regional, linguistic and State loyalties tends to make the people forget India. The old values, which held society together, are disappearing, and as there is no effective programme to replace them by a new sense of social responsibility, innumerable signs of social disorganisation are evident everywhere and are continually on the increase."

The Commission recommended two kinds of programmes in education. "The depending on national consciousness can be fostered specially by two programmes; (i) the understanding and re-evaluation of our cultural heritage, and (ii) the creation of a strong driving faith in the future towards which we aspire. The first would be promoted by well-organised teaching of the languages and literatures, philosophy, religions and history of India, and by introducing the students to Indian architecture, sculpture, painting. music, dance and drama. In addition, it would be desirable to promote greater knowledge, understanding and appreciation of the different parts of India by including their study in the curricula by the exchange of teachers wherever possible by the development of fraternal relations between educational institutions in different parts of the country and by the organisation of holiday camps and summer schools on inter-State basis designed to break down regional or linguistic barriers.'

In the NCERT approach to national integration, the teaching of history, geography and languages in the regular school curriculum has received attention. School children come from different States of the country and live together for some time under the guidance of their teachers in camps every year. During this period they learn about each other's languages, dress manners and customs, food habits, music, dance, handicrafts and other arts. It creates an awareness of sharing all the rich heritage that India has to offer. During the stay in the camp, they also work on an "Our India" project, which is an attempt to develop an image of India as a geographical, political and economic entity. They participate in activities and hear talks on history, which forter, in the children and the teacher, an appreciation of the unity in diversity which is so characteristic of India.

Now, there is this diversity, and it is very easy to emphasise the difference and overlook the unity that underlines the diversity. And so Nehru, in his characteristic manner, asks; "The discovery of India—what I have discovered? He continues: "Today she is 400 million separate individual men and women, each differing from the other, each living in a private universe of thought and feeling. If this is so in the present, how much more difficult is it to grasp that multitude in the past for innumerable succession of human beings. Yet something has bound them together and binds them still. India is a geographical and economic entity, a cultural unity in diversity, bundle of contradictions held together by strong but invisible threads. This is truly the vision of India that we have to recapture again and again, as we live through the contemporary times, and education is certainly one of the most important means of communicating to the students and teachers this vision of India which for ever inspires, not only us who live in this country, but many who live elsewhere in the world.

In order to develop national integration it is important to understand that there are divisive forces in society and that these forces are born out of uncontrolled passion and anger, and are based on misunderstanding of the human situation. We have many castes in our society which devide us. Normally, this does not interfere in day today activity in society, but when there is a crisis, arising out of conflict of interests, particularly economic interests, and interests of power, casteism raises its ugly head. We suddenly become aware of our differences, and our perception gets coloured. We wrongly attribute characteristics of human behaviour to castes, and consider some castes as bad and some as good. A similar thing happens in the matter of language, as well as religion in which matters we have difference in our country. It is, therefore, necessary to cultivate the value of critical analysis scientific thinking, rationalisation and an openness of mind, to accept the idea that one may be wrong. It is not easy to develop such attitudes and values. Schools and colleges will have to provide special courses and make special efforts in order to cultivate these attitudes and values so that they become more or less a way of life. In this the teachers play a crucial role.

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*Director, NCERT, New Delhi.

There are about 3 million school teachers in our country. College teachers are less in number. There are more than 4,500 colleges in the country, and 110 universities. With about a 100 million students and 3.5 million teachers, in the total educational system we have really a stupendous task, one can easily understand that not all teacher in such a large system will have the kind of rational and scientific outlook, which will prevent outbursts of feelings and temper, and not allow one's preception and thinking to be distorted so as to perceive caste groups, religious groups, language groups etc. as being primarily responsible for the difficulties that one experienced. But there has to be some programmes for school and college teachers to develop an orientation towards scientific thinking and scientific values, towards the values of scientific humanism, rationalism and willingness to suspend one's judgement until one has found sufficient evidence to draw conclusion. This will require the introduction of programme specially made in the context of teaching of history, geography, languages and the arts in teacher training institutions, both for in service as well as pre-service training programmes.

It is necessary, therefore, to think of developing signs, symbols, images, slogans which would be shared in common by everybody in India. Our Constitution, our National Flag, our National Anthem, our National emblem are perhaps the only common symbols that we share. In times of war, this may bind the nation together, but in times of peace, we need something more. That is why the question of sharing in a common knowledge regarding our history, our geography, our handcrafts, our arts and culture has become very important. Unfortunately, this has not received much attention. It is necessary to explore more thoroughly the possibility of having a common course on Indian History and geography and culture at all levels of education throughout the country. Such a course should at least be introduced in the programmes of teacher training.

It is however, equally important to pay attention in the field of education to the inculcation of certain values and habits like those of open-mindedness, rationalisation, punctuality, discipline, orderliness kindness, compassion and the like which have been mentioned in the NCERT's document on 10-year school curriculum. In practice, however, it is only in some schools and colleges that one finds any attempt to create a climate which will develop these habits. It is, therefore, necessary to make a concerted attempt in all schools and colleges of the country to develop programmes within the curriculum, as well as in co-curricular activities, which will help in the development of national integration. In this context, one should consider the importance of the role of programme, like that of the NCC and of the NSS. These are important programmes which help the young people to cultivate proper habits, attitudes and values and enable them to develop self-restraint and understanding.

Our differences should not be really our weaknesses. On the contrary, they shonld make us aware of the great heritage that we have, and the great obligations that we have to the future so that the Constituioin and the values enshrined in the Constitution are not only cherished, but increasingly practiced in our daily life. [*Courtesy—The Mail.*] ☐

Curriculum Development and the Community

(*Continued from page 564*)

country largely of local issues. It is quite possible that there are serious problems in the educational process and student unrest is merely symptomatic of the uncertainties promoted by the educational system. However, the local manifestations of student unrest seem to subside with a *ad hoc*, piecemeal short-term decisions. The educational experience ought to promote more meaningful organised behaviour by its participants. In Universities and Colleges continue to operate on the basis of small firefighting operations, the *status quo*, (keeping education lacking in relevance to the needs of the society and elitist in character) would become its dominant direction, if not the goal. Keeping the students in an institutional framework and providing them with educational experiences that have not direct or perceptible link with the employment market on the role of a citizen in a democratic society may not in itself be conducive to the balanced growth of the educational system itself. One of our senior educationists has viewed the function of our colleges and universities of body sitters". One need not agree with this view in its totality, for the very informal processes of educational experiences available in a university/college campus and in the larger society enable a student to assimilate a great deal of negative behavioural traits. To the extent that educational institutions are microscopic behavioural forms of the larger society, their role as intervening and behaviour-modyfying agencies may be in jeopardy. However, there is a great deal that can be achieved by planning experiences aimed at promoting greater involvement of a large majority of students. ☐

Framework of ESP in India

R. K. Singh*

The passage from 'special' to 'specific in ESP marks a theoretical and pedagogic advancement in that it is indicative of the LSP (Language for Special Purposes) researchers' concern for defining their activities in terms of goals which, in turn, takes into account certain basic questions like: who the learners are, what their linguistic background or level of competence is, what their view to language learning is, what their purpose and expectations are, what particular skills they will be needing in their actual, on-the-job situation etc. The focus is on 'specific' *needs* rather than 'specific *languages* with the objective of solving the learners' specific linguistic difficulties. In other words, the 'special/specific' in ESP refers to "specialised aim" (as distinct from a special language) with emphasis on "the *purpose* of the learner for learning the language, not on the language he is learning", to quote Ronald Mackay and Alan Mountford. 'Purposes' in ESP suggests a *conscious* aim on the part of the learner as well as the teacher. As Robin Turner explains: 'S' leans towards 'P', since 'specific language' can hardly mean any language variety.

Though ESP is linguistics' immense contribution to language teaching in that the approach is delimited to the needs and demands of learners' occupational or professional communication, and though there is so much development in its method and material vis-a-vis the learners' requirements (in the Western countries and America), there are several stumbling blocks, both for teachers and course designers in the situation of a country like India, that call for careful attention.

A realistic appraisal of the situation will not be possible unless the gap between the language needs, language demands and language supply is bridged and these are properly identified and assessed within the socio-economic constraints and the national language policy. There will also be a need for wide ranging discussion of academic questions like, (i) is it really true that students face difficulties in following their technical/scientific texts and lectures? if so, what are the areas of difficulties? (ii) is it true that students cannot communicate even if they have the mastery of the technical subject because they have no command—written or oral—over the language? (iii) is the English teacher in a technical institution expected to teach the 'specialised text' or the non-specialised language? (iv) should he be a content specialist as well as a language adviser? (v) can the English teacher legitimately teach language without any subject knowledge or the area of 'specialism'? and should ESP be taught by language specialists or by subject specialists? (vi) is it the English teaching of Science/Technology or English for Science/technology? (vii) is the knowledge and teaching of terminology of technical/scientific text necessary in the Indian context? (viii) is there any need of specialised teacher-training to manage ESP? etc.

Though the English courses currently offered at ISM have little relation between the learners' needs, aims and objectives, choice of text-materials, linguistic content or the types of exercise etc. and though there has been no systematic study of their specific needs and various psychological and linguistic factors to create interest in English lessons (even if it carries equal weightage), I have never heard or noticed students complaining that they face difficulty in following their subject texts or even in using the artificial devices of science language such as symbols, formulae, graphs etc. It is actually the manipulation of the natural language in communicating ideas and thoughts they face difficulties in, that is, *writing* in what we call *Scientific style* as expressed by objectivity, precision, passive construction, factual expression, absence of expressiveness and emotions, predominance of certain forms and structures, and, of course, at a higher level, use of illustrations, diagrams, tables, figures and other non-linguistic means of expression.

During the last seven years, ISM has followed and abandoned the following textbooks in the first two years (and later, first three semesters) of the five-year (ten-semester) B. Tech course :

(i) A.J. Herbert: *The Structure of Technical English* (ELBS)
(ii) TTTI/Calcutta ; *English for Technical Students* (Orient-Longman)
(iii) L. Brander (ed): *Portrait of the Present* (Oxford)
(iv) Peter J.W.Taylor (ed): *Modern Short Stories for Students of English* (Oxford)
(v) H. Dowe (ed): *Science Speaks* (Oxford)
(vi) W. Eastwood (ed): *Science and Literature* (Macmillan) Second Series
(vii) Graham Graves: *Foundation: English for Science Students* (Oxford)

F.T. Wood's *A Remedial English Grammar for Foreign Students* (Macmillan) has also been in use as a reference book. Of all the textbooks named above, the first and the last could help teach certain linguistic elements and patterns—related or unrelated to students' needs—though, I am afraid, appropriate text material and audio-visual aids have never been used, which is possibly an important reason for students not changing their attitude: they have

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never taken English class seriously and have never been motivated to study the so-called Technical English. However, year after year, in course of informal discussions with them I have learnt that they have no difficulty in coping with their science/engineering/technical textbooks or lectures. But they have often complained that the English class gives them too little experience or skill-competence to enable them to use the language in their own field of specialisation. They may, though, be able to 'manage' communication of their technical knowledge, but it is not satisfactory or effective because, for example, they make errors of all sorts. My feedback testifies to their expressed need for the systematic development of competence both in written and oral relaying of communication. In the context of a technical university, the ESP teacher, therefore, is first expected to help them learn to write for variety of people and purposes and then, take remedial measures to improve their oral communication. Mere grammatical correction might not be sufficient: he has to develop communicative fluency of his students, which also appears to be their valid expectation. Besides, since more and more specific language requirements have been created by our society, the ESPist teacher's task basically consists in analysing and specifying the needs of his students which, in turn, will determine what should be taught and how to teach it.

But any fruitful measure towards the specification of students' needs can begin with Error Analysis (EA) which will help (i) to establish the areas of grammatical, lexical and cohesive errors, (ii) to explain the causes of these errors, and (iii) to suggest ways and means of improving the situation. It will also help establish a close connection between ESP and EA in various situations such as answering examination questions, writing of Project Reports, academic papers or delivering seminar talks etc.

The teaching/learning strategy is determined by communicative needs of different groups and proficiencies of different degrees (to meet special professional demands of technical students) with aims and objectives in the main. It seems to me that an effective ESP in the Indian context may aim at preparing students to independently read, understand and reproduce in their own language the materials of science/technology; to understand/write academic or professional articles and participate in discussions; to enable them to consult reference materials; to express their own ideas concerning personal affairs, socio-political, cultural, and of course, scientific/technical activities etc.

A better way to identify and define the objective of teaching English in a technical university appears to be a personal interview or feedback from students who have already passed out and are settled in their respective professions. It may truly reveal (i) the relevance of English language teaching (for whatever purposes), (ii) the skills required to be developed (reading, writing, speaking etc.) and (iii) the nature of the text material vis-a-vis the actual occupational demands. If English is taught keeping in view its professional use, then each profession's specific requirement—how and in what circumstances English is used in that profession and the students' needs at the stage when English is taught—is to be analysed. If it is for an on-the-job use, the teacher needs to understand not only the degree of speciality/complexity of the language used but also the type of communicative skills to be developed. At the same time, the teacher has to maintain the students' general linguistic competence and abilities. They have to be linguistically prepared not only for specialist-to-specialist in intra/inter-disciplinary communication but also for specialist-to-layman communication.

In other words, language planning and teaching need to exploit the communicative resource of each individual which consists of his ability to communicate effectively in different contexts as also for a satisfactory inter-disciplinary, social and cross-cultural encounter and mutual communication with proper linguistic etiquette.

As to the ESP material management at ISM, there has hardly been any exploitation of books of other subjects, journals and other audio-visual aids available in the institution, most probably due to confusion whether it is English teaching *of* engineering/technology or English teaching *for* engineering/-technology. The former is the language students will require to cope with, the latter is the language students will need to know in order to cope with. For want of clear understanding as to the role of English teaching, it seems the course/curriculum planners (non-English discipline) at ISM could not identify *needs* or specify *goals* though they had been fascinated by EST/ESP.

The problem has also upset the classroom-role of English teacher in that those unfamiliar with the nuances of language teaching (but positioned at the helm of affairs) think that he should also teach the specialised language, including the vocabulary, of science and technology. There is no denying the fact that scientific/engineering texts have their own syntactic and stylistic peculiarities distinguished from the manners and means of general, non-specialised language, which is generally well understood, as the students have been studying it before taking admission in a technical institution. At the tertiary level, it is agreeable, they have largely to be able to understand and interpret specialised texts. But what is not realised here is the need to know the particular area of their weakness, which it appears to me, is the difficulty in factual, written communication. In a scientific/technical English class, therefore, the students have to be trained in objective way of thinking and looking at things, which again requires training in factual, impersonal, unambiguous, and at the same time, economical writing. They have to be taught, for example, how to organise statement, explanation, argument, deduction, comparison or refutation in their verbal composition. It would be, of course, helpful if the English teacher has a knowledge and understanding of the various forms of the usage of scientific language. If he is also concerned with the building of linguistic concepts of engineering/technology, then the technical vocabulary rather the content of the technical subject will have to be integrated with the learning of language. He may have to familiarise himself with the technical terminology and its stylistic and syntactic characteristics.

However, my feeling is that the concept of a technical/scientific term is generally clear in the mind of students who most often come to technical institutions after success in an all-India competition, which is in English medium. (The case of polytechnic and such other institutions is different.) Thus, they have not to be taught technical terms by the English teacher, for it can be best taught by the technical subject teacher. Indeed, an English teacher with the knowledge of scientific/technical vocabulary/subject matter is in an advantageous position. All that he may, then, need to acquire is the competence and adaptability—to meet with the practical demands of teaching-learning situation.

But in actual practice the language teacher is traditionally drawn from the ranks of the humanities graduates and has no science/technology background. Invariably his secondary level science knowledge is either in regional language medium or forgotten long before he becomes an English teacher. There are very few of such non-subject-specialist language teachers who can survive the 'strains' of ESP teaching. Very often, he fails to deliver the goods because, for example, he does not know the meanings of most of the technical terms and as such the meaning of the sentence in which the terms occur remain vague in his mind and vaguely can he transmit any conceptual structure. For his lack of knowledge of the specialist subject field, he cannot create or innovate, even if he has a linguistics background, unless of course he has some specific training in ESP and he is apt in his judgment of students' linguistic and psychological constitutives.

Therefore, it appears imperative that instead of 'jargonising' English teaching mechanism to establish power and influence or to discriminate against non-experts, the ESPists (or even the teachers of English language in technical institutions) need to devote themselves to the problems of teaching of *clear, simple* English for the purposes of effective communication. They need also to work for the simplication of the so-called language of experts, evincing a greater sensitivity to the socio-linguistic problems of students.

The conditions in India are different from those in America or western countries, and decisions made on the basis of their experiences will have little applicability here. Under the circumstances, unless the western ESP is adapted to the academic and future professional language needs of Indian students of science and engineering, and unless the function of English language teaching in our country is realistically re-defined, teaching of English will continue to degenerate into the mess it is already in.

The adoption or execution of any teaching/learning method or curriculum has to go hand in hand with education reforms. ESP teaching methodology as also the syllabus planning has to take into account the complex of the medium of instruction in primary/secondary education in various states and the position of English at the national level. Other local factors like the government's language policy, the present educational system, the socio-economic condition and the literacy level of the people, the pre-professional background and the future role of the students have also to be considered for any positive result.

Unfortunately, there is no correlation or continuity in the whole process of English teaching method and material from primary to higher secondary to colleges and universities. There is a sort of haphazardness in the whole system which may render it difficult to remedy the communicative deficiencies at a later level with limited resources, time and personnel. Therefore, it seems generally difficult to have a fair assessment of what the students already know, what is understandable to them without much labour, and what and how new things are to be imparted, unless there is an inbuilt provision for a regular on-going study of these issues within the ESP programme, structured within the needs/ends framework. □

Future of University Education

(*Continued from page 562*)

ing, work and life in practical action. Teaching and learning models for the future must integrate learning and living, the personal, the social and the political.

The future of higher education is best seen as a continuous evolution of new and self-conscious experimental forms, each attempting at once to support the individual growth of these directly involved and to create the new social understandings, skills and goals necessary for the evolution of democracy.

The teacher will remain the kingpin in all plans to promote quality and academic excellence. But, in the overall scheme of things, a shift from teaching to learning will be desirable. Never was the time so ripe for such a change since the first university was set up in this country in 1857.

In the words of the eminent economist, Harold Lasswell, "mankind is passing from the primacy of the past to the primacy of expectations of vast future changes". It is upto the academic community to see that these expectations are not belied. □

[*Broadcast by A.I.R.*]

CAMPUS NEWS

Guidelines for new Tamil university

Mr M.G. Ramachandran, Chief Minister of Tamil Nadu while delivering the valedictory address of inaugural celebrations of the Tamil University at Thanjavur said that the newly-established Tamil University should strive to develop Tamil in such a way that 'even the highest thought in the fields of science technology and law should be in Tamil. He posed the question why when the ancient Tamils were able to achieve high standards in such fields as science and engineering through their mother-tongue, it was not possible to achieve the same thing now. He said the five-man expert committee constituted for the setting up of the University should continue for a five-year term and serve for the development of the University. He said Thanjavur had been selected for locating the University not because it was his home district but because it was the home of many cultural developments. The rules governing the Tamil University would be so framed that caste religion and politicis would never find entry into this institution. He said only Tamil scholars and experts would be allowed to take active part in running this university which would strive to develop various subjects including engineering, economics and medical science. The proposed Tamil Sangam at Madurai would take up intensive research work on Tamil. Both the Tamil Sangam and the Tamil University would play a key role in developing Tamil at world level.

Mr Sadiq Ali, Governor, who inaugurated the university, said that it would be a unitary and residential type university and will work for furthering the advancement of learning and prosecution of research in Tamil'. It would help students and scholars from abroad to conduct research in several aspects of Tamil and Indian culture and civilisation. He said the Tamil University would not just concentrate on development of Tamil language alone but would also create awareness of the value of the spirit which characterised much of Tamil literature. He said the university would help students discover the hidden treasures of the Tamil language.

Seminar on socio-economic change

A three-day seminar on 'Socio-Economic Change in Northern India' sponsored by the Indian Council of Historical Research and Indian Council of Social Sciences Research, Panjab University, Chandigarh was organised by the Department of History, Kurukshetra University. Prof. S.C. Dube, Formerly Director, Indian Institute of Advanced Study, Simla and Notional Fellow, Indian Council of Social Sciences Research, New Delhi, inaugurated the seminar. In his address Prof. S.C. Dube observed that obsession with longer than life heroes have blurred a fewer perception of history. One misses a step by step account of the process of fusion which had been going on in Indian history right from the days of the early Aryans. He referred to the process of interpolations, interactions and stratification leading to even rigidities in the socio-economic set-up of the various groups. The problems of village communities, its networks, caste, ritualism etc. he felt, can be explained better in socio-historical perspective.

Delivering the key-note address Prof. Bipan Chandra, Dean of the Centre for Historical Studies, School of Social Sciences, Jawaharlal Nehru University, raised certain pertinent questions as to how the northern region of India has become socially and economically what it is today, what role colonialism had played and why the culturally interlinked groups and tracks of the region could not forge a common and positively cohesive front aimed at socio-economic change and upliftment.

Dr B.R. Grover, Director, Indian Council of Historical Research, suggested that the scholars have to coordinate all the possible sources and should take seriously the exacting requirements of research methodology. Mr M. Kuttappan, Vice-Chancellor of Kurukshetra University, who presided over the inaugural function of the seminar, said that the administrative policies initiated after Independence had started having an impact on society.

Seminar on women in community development

A three day seminar "Women in Community Development" was held at Sri Venkateswara University from 12th to 14th September 1981. The objectives of the seminar were to initiate and assist women in gaining self knowledge and to relate this knowledge to making choices which contribute to their career development and performance of multiple roles particularly in community development; to provide a climate for narration and discussion of various experiences of women from different local organisations in context to the existing conditions of the society, and to create a forum for free exchange of ideas among women from different walks of life. The seminar was inaugurated by Professor M.V. Rama Sarma, Vice Chancellor, S.V. University and was presided over by Shrimati A.C. Krishna Rao, Vice-President Stree Seva Mandir, Madras.

In the first session on "Women for the cause of Rural Development" Ms. Padmanabhiamma, Senior Technical Officer, Institute of Rural Health and Family Planning, Madurai and Dr L.S. Saraswathy, Director/Consultant of Rural Development Society, Chinglepet (Dist.) focussed on the problems related to developing women in the rural areas with reference to the population growth, psycho-social, socio-cultural and socio-economic background of the families. They stressed the need for education of the women to gain self reliance and motivation to plan and organise their own developmental programmes. The burdensome nature of the life of a rural woman was described with feeling and the speaker Dr Saraswathy urged the andience to think of constructive ways of ameliorating her condition.

In the second session on "Women for the Cause of Social Change," Ms. A.C. Krishna Rao, stressed on economic independence as the basis for development of women. Education was highlighted as the force for social change in that proper education should begin in the early years of life and lead to self reliance and decision making. She said that the crux of the problem in the development process is the dearth of sincere and committed workers. Ms. K. Ramalakshmi, the well known writer speaking on social change through writing urged writers to project the image of women in a realistic and positive manner rather than cater to common tastes.

In the third session on "Improving legal status of women" and "Career Opportunities and Guidance for Women," Srimathi Anantanayaki, a leading lawyer and President of the Tamilnadu Congress Committee, presented the historic perspective of the legal issues of women and enactment of laws for protecting the rights of women. The need for creating more awareness among women regarding the legal issues and the opportunities was stressed. Sri L. Siddamuni, Deputy Chief, S.V.U. Employment Information and Guidance Bureau, brought out the slowness of women in seeking employment opportunities. The women are employed more in the service sector such as teachers, bank employees and nurses than in Techno/industrial sectors. He stated that women enter more the traditional occupations than in new and challenging occupations.

Professor G.N. Reddy, Principal of the University College of Arts and Sciences and Dean of the School of Humanities and Extension Studies delivered the valedictory address. In his address he projected Man and Women as partners in development and the need to expose men to the problems of women, for gaining their support and help was pointed out. The chief guest talked of the increasing momentum of womens' participation at various levels of development both in rural and urban areas. He forecast a bright future for women.

Govt. to monitor foreign students' education

It is learnt that the Education Ministry, in consultation with the External Affairs Ministry, is formulating a scheme to regulate and monitor the education of foreign students in India. The need for this has been felt in the context of the spurt in demand from foreign students for educational facilities. There are at present about 25,000 of them in different parts of the country and every year their number is increasing by at least 3,000.

The presence of such a large number with different cultural backgrounds often leads to problems of adjustment with the local community and sometimes there are unpleasant incidents. Unless steps are taken to prevent this, the students will carry back to their countries unpleasant memories.

There are three categories of foreign students : (1) those studying on Government scholarships under cultural exchange programmes; (2) those deputed by their respective Governments under bilateral agreements; and (3) those who are called self-financing. In the case of the first two categories, there is no problem as they are sponsored by the Government and their intake can be regulated. But in the case of self-financing students, the position is different. Anyone with a valid visa can get admission in a college here provided a seat is available.

For quite some time now, the authorities are concerned with remedical measures. As a first step, the intake of self-financing students has been regulated by stipulating that only those cleared by their respective Governments and having "student visas" can be admitted. The programme, now being formulated, seeks to ensure that the students have sufficient knowledge of English to follow the lessons and that their progress is monitored regularly. If any foreign student is found deficient in his basic attainments to pursue the course of his choice, he will be given special coaching. Similarly, in the course of his studies, he will be helped to get adjusted to the local cultural and social environment. A central agency to implement the programme has been proposed.

Institute for rural educators

A National Institute for Rural Workers Education and a Rural Directorate under the Central Board of Workers Education will start functioning from Nagpur. This is one of the several decisions taken at a recent meeting of the Board which decided to strengthen the organisation of rural workers through training the educators for this purpose.

John pleads for changes in higher education

Dr. V.V. John, an educationist, while addressing a seminar on "student unrest in India" suggested that the cost of higher education should be realised from the recipients when they are in a position to pay. At present only a small part of the tax-payer's contribution to higher education was recovered by way of fees. This coupled with a firm resolve on the part of the government that no one on the campus should be allowed to obstruct others from going about their work would solve student unrest in India. He said obstructing a man's free movement was a criminal offence and yet gherao was being given the same respectability as that attached to satyagraha. 90 per cent of student agitations in India were over "non-issues", like the size of the samosa in the college canteen or concessional cinema tickets. He said political parties were responsible for many a sin on the campus. Political parties while recruiting workers, looked for people who were responsible for disrupting life on the campus. And many of those who disrupted life on the campus were today "members of our legislatures'.'

Andhra VCs oppose Govt. move

The Vice-Chancellors of the nine universities in Andhra Pradesh met in Visakhapatnam recently. They have requested the State Government to give up the proposed amendment to the Universities Act, providing for appointment of State Government employees as Financial Controllers of the Universities. Such an amendment, they felt, would amount to interference with the autonomy of the Universities. The conference also urged the State Government to enhance the monthly salary of Vice-Chancellors to Rs. 5,000 and to adopt the University Grants Commission (UGC) scheme for promotion of university teachers according to seniority and merit. A three-man subcommittee was appointed to review the system of rotation of heads of departments in the State universities.

Tamilnadu to meet cost of tutors' PG studies

The Tamilnadu Government has approved a scheme to help graduate tutors and demonstrators improve their qualifications. The scheme envisages deputing these teachers at State cost to undergo M.A. and M.Sc. courses with full pay and allowances in a phased manner. About 30 such tutors and demonstrators will be permitted to undergo postgraduate courses every year from 1981-82, subject to certain conditions.

About 280 graduate tutors and demonstrators are now working in various colleges in Tamil Nadu. According to Dr K. Meenakshisundram, Joint Director of Collegiate Education the scheme is an extension of the State faculty improvement programme which was started in 1979.

Co-ordination board for higher education

A high-level co-ordination board is likely to be set up in the Union Education Ministry to co-ordinate with the State Governments development of higher education on an uniform basis. The board is expected to function in close collaboration with the University Grants Commission. The idea behind the co-ordinated effort is to undertake restructuring of courses at the under-graduate level to make them more relevant and purposeful. The need to uniformly restructure education at the under-graduate level was stressed at the State Education Ministers conference in June at Delhi. The proposed co-ordination board will ensure maximum utilisation of existing facilities in universities. It is also proposed to increase the number of working days in colleges and universities. Efforts are also being made to develop a uniform code of ethics for teachers, in colleges and universities. A review of text books is also to be undertaken, keeping in view of the need to promote national integration, and the role of education in this regard.

Calcutta principals discuss new examination pattern

The Vice-Chancellor of the Calcutta University, Dr. R. K. Poddar convened a meeting of the Principals of affiliated colleges to discuss various questions relating to the introduction of the new pattern of examination from 1982. A similar meeting was convened a few months ago, following which the university had written to all the college principals to furnish details regarding the number of students, their subjects and other things. The university authorities are now making preparation for the introduction of new courses. Under the new system there will be 15 short objective-type questions of two marks each, 4 essay-type questions of 15 marks each and another 10 marks for internal assessment. The practical examinations will be conducted before the theoretical ones and to avoid delay, the answer scripts will be sent directly to the examiners from the examination centres instead of routing it through Calcutta University.

Seminar on regional development in NE region

A four day seminar on Environmental Framework and Regional Development of North East India was organised by the Department of Geography, Gauhati University. Inaugurating the seminar, Prof. J.N. Choudhury, Vice-Chancellor, Gauhati University, stressed on the importance of preserving the ecological balance while exploiting mineral and forest resources for development.

Prof. M. Barthakur, Director of the Seminar, dealt on the necessity of regional planning, in which NEC could play a major role. Dr. M.N. Goswami, Ex-V.C. Gauhati, University, suggested regional planners could scientifically plan for new urban settlements suitable for co-operative exploitation of industrial resources. Highlighting its importance, he referred to the haphazard growth of Gauhati with consequent fall in the standard of health and sanitation which is indicative of the failure of regional planning.

In the Presidential address, Prof. H.P. Das, Rector Gauhati University quoted figures to highlight the economic backwardness of the north eastern region in relation to the rest of the country. In order to remove this regional disparity, he appealed to geographers, sociologists, economists, anthropologist and demographers to join hands.

CIEFL Shillong concludes training programme

The Regional Centre of the Central Institute of English and Foreign Languages at Shillong conducted a two-week refresher course for college teachers from the north-eastern part of India. seventeen lecturers from Assam, Manipur and Sikkim attended the course. The course consisted of five components: (i) Teaching English at the college level; (ii) Syllabus and examination for general English; (iii) English grammar; (iv) An orientation to linguistics; and (v) Phonetics and spoken English. The course work consisted of lectures, tutorials and practice classes. At the valedictory function Shri K.K. Sinha, Special Secretary to the Governor of Meghalaya, was the Chief Guest. In his address, Shri Sinha emphasized the need for learning language skills. Dr S.N. Saha, Director, Geophysics, GSI, North-eastern Region, who presided at the function said in his summing up remarks that we needed English basically for communication and therefore should see that our English is both simple and correct.

Seminar on normal and pathological development and structure in economic plants

The Department of Biosciences, Sardar Patel University, Vallabh Vidyanagar is organizing an All-India Symposium on 'Normal and Pathological Development and Structure in Economic Plants" during 2nd to 5th November, 1981. This will provide an opportunity for those interested in research on economic plants. About 40 young and known botanists will present their papers in this UGC sponsored symposium. There will be six-eight special lectures on topics related to the central theme of the symposium. Normal and Pathological aspects of structure and development in cereals, pulses, oil-yielding plants, gum-resin producing species, timber-yielding, and medicinally important species will be discussed. This will help in identification of topics of common interest, and those which need further research.

Golden Jubilee celebration to be held at ISI

A conference on Quality, Reliability and Operational Research will be organised by the Indian Statistical Institute as part of their Goldern Jubilee Celebration programme at Vigyan Bhavan, New Delhi, during February 18-20, 1982. The conference is being organised in collaboration with the Operational Research Society of India and is likely to be attended by academicians, industrialists, managers, executives and other practitioners. The programme includes industry-wise sessions dealing with research papers and case studies. Keynote addresses and panel discussions on vital topics for current interest, and an exhibition have been planned. Further information may be obtained for the conference co-ordinator, Conference Secretariat, Indian Statistical Institute, 7 SJ. S. Sansanwal Marg, New Delhi-110016, India.

Principals for Britain

Principals of six leading schools in the country left for the United Kingdom on a study tour. During their tour, the principals will visit schools at London, Cardiff, Manchester and Cambridge. They have been invited by the British Council.

They include Dr G.P.S. Waraich of the Delhi Public School, Wg-Cdr. Saran of Sainik School, Rewa, Mr H. N. Kashyap of Yadvindra Public School, Patiala, Mr H.L. Dutt, Delhi College of Indore, Mr D. Purohit of Hyderabad Public School and Mr George Abraham of Belgaum Military School.

Roorkee to start computer course

A two-year master's degree programme in computer science and technology has been approved for Roorkee University. The university has a computer centre and it has been offering post-graduate diploma courses in computer science and engineering for the past seven years.

The UGC approval of the programme at Roorkee is part of a comprehensive plan to make more computer manpower available for meeting the needs of different sectors of the economy. It is the third new course in computer sciences to be cleared by the commission during the last one month. The two other universities who have got U.G.C. approval for starting such a course are Baroda and Osmania.

Punjabi's gesture to foreign students

The Punjabi University plans to give its foreign students a break in their hostel life by introducing them to selected families in the city to enable them to have opportunities for living in a homely atmosphere for some time. Dr Bhagat Singh, Vice-Chancellor of the university, while presiding at a cultural function, organised by the Punjabi University Foreign Students' Association said that more than seventy foreign students are studying at the university and in the affiliated colleges. He suggested that local and foreign students should prepare programmes for joint celebration of their national festivals.

Prof. Sarabjit Singh, Adviser to the Foreign Students Association, and Mr M.A. Bhatti, Dean, Students' Affairs, said that foreign as well as local students should try to understand one another's cultures.

Due to increase in the cost of production of the Journal, the advertisement rates have been revised, as under, with effect from 1.10.1981.

Classified Advts. : Rs. 4.50 per line per column
Display Advts. : Full Page — Rs. 450

—Editor

News from Agril. Varsities

Farm land to be delinked from Varsity

The G.B. Pant University of Agriculture & Technology has taken a decision to shed over 4000 hectares of farm land as it has become a liability. As a first step towards this, a separate management council has been formed to look after the day-to-day affairs of the farm in a more effective manner. The council, at present, is headed by the Vice-chancellor but it will soon be replaced by a corporation to be run on the lines of a charitable institution. The farm had made significant contribution towards furtherance of the university teaching, research and extension programmes in the past. A suitable mechanism will be found to keep their linkage and side by side working. The Vice-Chancellor said the decision to delink the farm was taken after a series of events on the campus involving a large section of farm labour and workers, which caused frequent dislocations in the university's smooth working and adademic activities.

Initially, the farm was developed not only to reclaim land for private farmers, political sufferers, ex-Armymen and educated unemployed but also to provide much needed material for rural development in this area. In August 1957 the Government selected the farm as the site for a new university to be modelled along the lines of an American Land Grant University. When the university started functioning in 1960 nearly 5,702 hectares of land was transferred to it by the State Government. The main ideas were to provide finances to the university, produce improved varieties of seeds for the State, and for research and extension purposes of the university. The Pantnagar commercial farm now has an area of a little more than 4,000 hectares. The farm, second biggest after Suratgarh in seed production, made a profit of Rs 1.49 lakhs in 1961-62. The profit stood at Rs 142.74 lakhs in 1974-75, out of which Rs 1 crore was transferred to the university. Since then the profit was shown a marked decline and the net earnings in 1980-81 came to only Rs 70 lakhs.

The teaching community in the university has been demanding the delinking of the farm ever since the April 1978 incidents, in which 23 persons were officially reported killed in police firing. A concrete proposal was put forward by the university in 1980. It was accepted by the Government early this year.

Further energy allocation urged for farm sector

Dr B.S. Pathak, Professor of Eminence in agricultural engineering at the Punjab Agricultural University said that the dependence of agricultural production of Punjab on commercial energy had increased very fast since 1965-66. He further said that commercial energy was consumed directly in the form of electricity and diesel fuel to operate a large number of electric motors, tractors, pumping sets, crop threshers etc. But even larger quantities of commercial energy were consumed indirectly in the form of inputs like farm machinery, fertilizers and agro-chemicals.

Dr Pathak was presiding over the annual meeting of the Punjab Chapter of the Indian Society of Agricultural Engineers held at PAU. He said that the consumption of electricity and diesel in Punjab had increased by 15 times while that of nitrogenous fertilizers by 11 times during the last 15 years. On the whole the consumption of commercial energy in Punjab agriculture, both directly as well as indirectly, in the form of different inputs had increased by about 13 times during this period. Dr Pathak added that the outcome of the increase in commercial energy investment in agriculture had been higher land productivity and greater agricultural production. The experience in Punjab had shown that to make Proper use of the production potentials offered by land and water resources of the country, large amounts of commercial energy would have to be allocated to the agricultural sector during the next 15 to 20 years.

Dr Pathak exhorted the engineers to develop techniques for efficient utilization of all energy-based inputs in agriculture. He further said that in spite of the relatively higher commercial energy consumption its consumption per tonne of foodgrains produced was only 25 per cent of the commercial energy consumed to produce one tonne of foodgrain in USA. With increasing energy costs, the combination of commercial and non-commercial energy (including labour and animals) developed in a State like Punjab would enable this country to compete successfully in the production of food for world market at low energy and financial costs in the years to come. With adequate allocation of commercial energy to the agricultural sector and with its efficient management, India could become a successful exporter of food in not too distant a future.

Remote sensing in rice production

There is great promise for the application of remote sensing techniques for rice production in India. With appropriate development of pilot projects, these techniques could be used in delineating soils suitable for rice cultivation, estimating crop acreage and controlling pests and diseases. These were some of the decisions reached at the international symposium and workshop on "applications of remote sensing for rice production", held at the premises of the National Remote Sensing Agency at Hyderabad. The focus at the symposium was on how sophisticated remote sensing techniques like satellite, aircraft, and helicopter could be used to solve the complex problems associated with rice production.

The workshop was organised by the NRSA in collaboration of the Institute for Atmospheric Optics and Remote Sensing (IAORS) of the U.S. About 60 scientists from India, Indonesia, Japan, the Philippines, Sri Lanka, Switzerland and the U.S. participated.

On the basis of a number of papers presented at the workshop, the following recommendations were made:

(i) Formation of a technical working group to coordinate cooperative research activities in the use of remote sensing for rice production and technical coordination committee for field research programmes besides model assessment and development.

(ii) Coordination of the development of data banks for crop, weather and soil, possibly through the FAO and the international Rice Research Institute, among other organisations.

(iii) Use of the results of the "Large Area Crop Inventory Experiment (LACIE) conducted in the U.S. in wheat yield monitoring and forecast and the experiences of the Asian region and NRSA in developing rice monitoring techniques.

Third agriculture university for Bihar

A demand has been put forward for the establishment of the third agricultural university in the State of Bihar. It has been argued that Bihar has three distinct agricultural divisions, North Bihar, South Bihar and Chotanagpur. The first university was established at Pusa (North Bihar) and the other one has been recently established at Ranchi. But the third agricultural university is yet to be established in South Bihar. 90 per cent of the seven crore of Bihar population lives in villages and 32 per cent are solely dependent on agriculture. The third university, it is felt, would promote improved technology.

Bill on varsities help to farm schemes

An amending bill providing that the four agricultural universities in Maharashtra help the government's agricultural development programmes was passed by the legislative assembly. Mr. Bhagwantrao Gaikwad, agriculture minister, while moving the Bill said the government would come forward with comprehensive legislation for coordination of the working of the government and the universities after receiving the report of the Y.J. Mohite committee.

3rd All-India palanological conference held at HAU

Dr. P.S. Lamba, Ex-Vice-Chancellor, Haryana Agricultural University, while inaugurating the third Indian Palonological Conference at Hissar said that there was an imperative need for the study of biochemical and physiological causes of incompatibility to producing high yielding plants possessing diseases resistance. He said that systematic studies which can induce sterility on polan without effecting the female structure in plants should be taken up on urgent basis. Dr. P.K.K. Nair, President of the Indian Palanological Society said the study of polans has great importance because it has very wide convas. In view of its significance in agriculture, medicine, oil exploration and human history, the deliberations of the conference will have far reaching effects. He said the production and propagation of plants from polan is a landmark in palonological research. About 100 scientists from all over the country participated in this three-day conference.

Konkan organises seminar on grassland and fodder management

A two-day seminar on grassland and fodder management was organised at the campus of the Konkan Krishi Vidyapeeth, Dapoli. Dr M.S. Pawar, ex-Vice Chancellor of the Mahatma Phule Krishi Vidyapeeth, Rahuri was the chief-guest. In his inaugural address he said slow progress of research in the field of grassland and fodder crops in India, so far could not improve much the quality of cattle feeds. Hence, available grasses and the unwanted plant residues, such as straw and fodder are fed to the drought and milch animals. In the present context of development, we should not stretch the situation any further. He appealed to consider the possibilities of increasing the area under pulse and oilseed crops, so that their by-products such as cake can be fed to the animals; growing forage crops on hill slopes by using water conservation techniques, utilising solar energy for increasing the productivity of fodder crops; and cultivation of multiple-use plants like cassava and tapioca. To achieve this, he said that one should not think of any government organisation or establishment of any corporation for the purpose but the problem should be approached by establishing community co-operatives.

Dr Prataprao Salvi, Vice-Chancellor of the Vidyapeeth presided over the function. He said, "the fruit trees such as mango, cashew and the other trees useful for fuel and timber purpose should be planted in the cultivable waste land in the Konkan region. The space in between these trees be utilised for cultivation of grasses. For this, watersheds should be selected and be brought under cultivation of the above crops. Similarly, soil erosion should be checked by following appropriate water conservation techniques. Dr Salvi expressed the need for research in exploring the possibilities of using the various existing trees and bushes in the konkan, as the fodder crops.

Rice research institute for Hazaribagh

A rice research institute will be set up at Hazaribagh for which 116.86 acres of land will be made available by the Bihar Government to the Indian Council of Agricultural Research (ICAR). It has been decided to transfer the land of Masidih Government

Farm and the District Research Farm at Hazaribagh to the ICAR. The institute will be of international standard which will benefit farmers, particularly in the tribal belt of Chotanagpur and Santhal Parganas. The Bihar Government hasearmarked Rs 50 lakh per year for the next four years for construction of houses for government officers and workers. The Bihar State Financial Corporation was given a guarantee to raise a loan of Rs 1.75 crore from financial institutions.

German gift to HPKVV

The German Agency for Technical Co-operation (GTZ) has recently gifted a highly sophisticated Atomic Absorption Spectrophotometer to the Department of Soil Science and Water Management, HPKVV, Solan campus through Dr R.S. Minhas, Associate Professor (Soil Science), Solan. The instrument, costing over three lakh rupees, can speedily analyse macro-and micronutrients like potassium, calcium, magnesium, iron, manganese. copper, zinc, molybenum, boron, etc. from soil and plant samples. The scientists and post-graduate students of various departments located at Solan are likely to be benefitted greatly in carrying out their research programmes more precisely on this instrument. The instrument has come as an aid to the Indian scientists who studied in West Germany as fellowship holders of German Academic Exchange Service/Alaxender von Humboldt Foundation and who are now working in universities/institutions in the developing countries. Dr Minhas is one of the thirteen Indians to get this type of technical aid on the basis of research project submitted by him to the German Academic Exchange Service. Dr Minhas studied at the University of Bonn, West Germany, for his Ph.D. degree under the guidance of Professor (Dr) Hermann Kick from 1968-71.

Science & Technology

Tiwari asks UP to step up resource mobilisation

Mr N.D. Tiwari, Union Industries Minister, made a strong plea to strive for better resource mobilisation for their developmental plans as total dependence on the Centre for funds would not solve the problem. He was delivering the valedictory address at a symposium on ‘Science and Technology in the Development of Uttar Pradesh’ organised at the Central Drug Research Institute in Lucknow. Mr Tiwari said resource mobilisation did not necessarily mean higher taxation. Additional resources could also be tapped by better utilisation of existing infrastructure and by increased savings, to which states should pay due attention. A deficit economy could help in this regard only to a limited extent, as the inflationary effects created by it had detrimental effects, on the economy.

Referring to UP Mr Tiwari said the state should find out the reason why its Electricity Board in spite of having an installed capacity for generating 3,000 MW of power was having very low generation. Similarly the functioning of such agencies as the command areas projects should be properly gone into, without which the backwardness of the state could not be removed. He stressed the need for creation of a necessary social consciousness favourable to economic development in which every section of the society played its due role.

With regard to the importance of scientific knowledge in the removal of economic backwardness, Mr Tiwari said the country would have to ensure that the benefits of science and technology percolated to the vulnerable sections of the community and backward areas more efficiently.

On its part the Central Government had prepared a blue-print for promoting the applications of science and technology for the benefit of weaker sections in the Sixth Plan. However, transfer of technology was to take place up to the level of the farmer in villages and this was the area where local institutions such as agricultural colleges and schools could give necessary help. A national research project for technologies for landless labour was to be jointly undertaken by major scientific agencies and scientists at various levels could help the Government in serving the poor by transfer of technology to the people immediately.

The Union Minister of State for Science and Technology, Mr. CPN Singh, while delivering the presidential address at the symposium, urged scientists to help in changing the outlook through education, popularisation of science and dissemination of the results of scientific research, to bring about a social change favourable to development.

Prof. Nurul Hasan, Vice-President, CSIR, called for maximum utilisation of vast natural resources and scientific man power available in the State for the overall development. He expressed concern over deforestation in UP particularly in tarai region which was creating ecological problems. He, however, called for striking a balance between environmental conservation and requirements of development.

Indian technology grows abroad

Over 200 projects, based on Indian technology, are in production or in the process of implementation in 39 countries. Most of these have been set up with Indian equity participation. In a move to make Indian capabilities known more widely, The Indian Investment Centre (IIC) has brought out a series of publications like "India Offers Technology" and "Technologies From India". The publications provide information as to the areas where technologies are available in Indian companies interested in providing such assistance.

Mr Harbans Singh, chairman and executive director of IIC, said in New Delhi that besides the two hundred projects there has been a phenomenal growth” of Indian consultancy services in the fields of design and process engineering, management and accounting. IIC has also published an investment guide for non-resident Indians listing all facilities provided by the Central Government and some of the State Governments to attract investments and remittances. It is estimated that there are over six million Indians and persons of Indian origin abroad. Among them are thousands of professionals in various disciplines as well as large number of skilled and semi-skilled workers employed in various countries. The publications bring out the series of policy liberalisations effected in recent years and incorporates Government's industrial licensing and foreign collaboration policies.

Indian mining education team visits Zimbabwe

A recent visit to Zimbabwe by by a team of Indian experts is expected to lead to close academic collaboration between the two countries in the field of mining education and joint mining ventures. The two-man team, constituted by the Govt of India under the Indian Technical and Economic Cooperation (ITEC) Scheme was led by Prof. G.S. Marwaha, Director, Indian School of Mines and the other member of the team was Prof. M.A. Ramlu, Dean of Consultancy and Sponsored Research, IIT, Kharagpur. The objective of the visit was to study the mining education facilities and status of mining industry in the newly-formed Republic of Zimbabwe and to suggest improvements in the same. The members of the team visited educational and research institutions connected with mining and held discussions with several Ministers and Officers of the Government of Zimbabwe and representatives of the mining industry and its workers. The team also visited a number of coal, gold and nickel mines, and also addressed learned societies.

In its report to the two governments, the team has pointed out that Zimbabwe occupies an important place on the mineral map of the world with respect to gold and silver, nickel and copper, chromite and asbestos, besides, coal and itonore, are also exploited. The value of mineral production constitutes about 8 per cent of the country's GNP. The Zimbabwean mining industry is characterised by a large number of ‘small workings’ which are aided by an extraordinary package of facilities provided by the Government. The organised sector of the mining industry, which is responsible for the bulk of mineral production is in the hands of eight multinationals. The mining practices conform to low-to-intermediate level of technology. The main constraint on the expansion, even maintenance. of the Zimbabwean mining industry (in the present transitional period as well as in the future) appears to be the factor of indigenous skilled manpower for replacing the departing white Rhodesians. In this context, collaboration with friendly countries like India, in the form of joint ventures for mineral exploration, exploitation and processing, assumes significance.

WCSWR

All Social Work Researchers of the World

Sub: World Census on Social Work Research (WCSWR)—Preparation of profiles of Social Work Researchers of the World.

As a part of the World Census on Social Work Research (WCSWR) the preparation of the profiles of Social Work Researchers of the World is in progress. The profile may consist:

I. Personal particulars like (a) Date of Birth (b) Permanent Address (c) Marital Status (d) Number of children.

II. Qualifications both (a) Professional (b) Academic (c) Special mention may be made of qualifications in Social work.

III. Experience in (a) Social Work Education (b) Social Work Practice (c) Social Work Research including (d) Positions held in University Bodies (e) Professional (f) voluntary Organisations (g) Government (h) United Nations etc.

IV. (a) Conferences attended relating to Social Work, Social Development etc. (b) Visit abroad and (c) Publications,

V. Own contributions to Social Work Research, including contribution made to (a) Social Work Research Methodology (c) Social Work theory (c) Literature (d) Social Work methods, (e) Fields (f) Skills (g) Social Work Communications, (h) persons guided for research in Social Work (i) Persons took Ph.D. Degree in Social Work under guidance. (j) Problems identified in Social Work Research and (k) Progress achieved etc. in about 1500 words.

The profiles of social work Researchers of the world will be edited and published in due course along with periodical—reports of the Work Census on Social Work Research (WCSWR). Kindly send the required information to the Directorate of World Census on Social Work Research at the earliest.

Dr. D. Sivakumar
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THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Anjaneyulu, A. Structure and ideal theory of semigroups. Nagarjuna University.

2. Dwivedi, Kalyani. On best approximations and farthest points of sets. Sambalpur University.

3. Indrajeet Singh. Certain spatially homogenous cosmological models with shear and rotation. University of Gorkahpur.

4. Kondala Rao, Mylavarapu. Group theoretical studies of some nonrigid molecules. Andhra University.

5. Lalitha, Gudipati. Theory of Boolean vector spaces and applications to functional analysis. Andhra University.

6. Rathie, Navratna. Generalized hypergeometric functions and statistical distribution. University of Rajasthan.

7. Ray, Dipankar. Non-Linear differential equations in general relativity and other systems and some kinematical studies in kinetic theory. University of Calcutta.

8. Sai Subramani Jayaraman. Functional analytic approach to the study of integral transforms and their applications to the problems of elasticity, Shivaji University.

9. Walikar, Hamamappa Bailappa. Some topics in graph theory : Contribution to the theory of domination in graphs and its applications. Karnatak University.

Physics

1. Basu, Indrani. Dynamics of the Heisenberg chain. University of Calcutta.

2. Das, Yog Anand. Transistor resistor—coupled device and its applications. Magadh University.

3. Dubey, Daya Ram. Destriau effect in some molecular and ionic solids. University of Gorakhpur.

4. Dubey, Girija Shanker. Dynamical studies of classical liquids. Panjab University.

5. Kanwar, Satish. A study on non-leptonic weak decays and some electromagnetic properties of hadrons. Panjab University.

6. Mandal, Tapas Kumar. Biophysical studies on the diffusion of ions through the membranes of artificial lipid spherulos (liposomos). University of Calcutta.

7. Patil, Shivangauda Anagauda, Studies on physical properties of Cux Fe3-x4 Ferrites. Shivaji University.

8. Powar,Jaywant Ishwar. Studies on magnetic and electrical properties at microwave and low frequencies of Mgl-x Mn x Fe $2\text{-}0_4$ ferrites. Shivaji University.

9. Radhakrishna, M.K. An investigation on the electrical characteristics of antimony trisulphide films and certain metal—semi conductor Sb 2S3 contacts. University of Cochin.

10. Ram Singh. Finite element theory and its application to fluid dynamics. Magadh University.

11. Roychoudhury, Mihir. Studies in some aspects of biomolecular recognitions. University of Gorakhpur.

12. Sathyanarayana, S.G. A theoretical study of the disorder induced localization and the absence of diffusion in certain random lattices. Bangalore University.

13. Srivastava, Rekha. A study of effective interaction in E.p shell. South Gujarat University.

14. Sutar, Vishnu Kalapa. Study of faster than light—particles (tachyons) and superluminal transformations. Shivaji University.

Chemistry

1. Abdul Huq, G. Spectrophotometric and polarographic study of metal complexes and their application to the determination of anions (Fluoride). Sri Krishnadevaraya University.

2. Baruah, Nabin Chandra. Isolation and characterization of the chemical constituents of medicinal plants with special reference to isoprenoids and flavonoids. Gauhati University.

3. Chadha, Ravinder Kumar. Preparation and characterization of complexes of cerium (III). University of Jammu.

4. Chakrabarti, Rama. Studies on electro initiated polymerization of acrylamide and methyl methacrylate in aqueous medium. University of Calcutta.

5. Chandra, Hemaleta B. Porey. Mechanism of reactions : Intermolecular oxyanion reactions. Nagpur University.

6. Desai, Babu Jinnappa. Physicochemical and analytical siudies of some coordination compounds of isonitroso-p-Diketones. Shivaji University.

7. Ghosh, Aloranjan. On the mechanism of oxene-transfer. North Bengal University.

8. Goudar: Naganagouda Ninganagouda. Synthetic studies in the indole field. Karnatak University.

9. Gupta, Hira Lal. Kinetic and mechanistic studies in the oxidation of certain carbohydrates by potassium permanganate in acidic media. Vikram University.

10. Holennavar, Rudrappa Malleshappa. Epoxidised materials. Karnatak University.

11. Jamkhandi, Abdulrahman Hasanbeg. A study of transitional metal complexes of thio compounds. Karnatak University.

12. Kaul, Rattan Lal. Synthesis of some hetero steroidal systems and related compounds. Panjab University.

13. Krishna Reddy, V. Studies in the chemistry of anions : A photometric study on the determination of fluoride, oxalate and phosphate with some oximate complexes of uranium (VI), iron (III) and molybdenum (VI). Sri Venkateswara University.

14. Laxmi Narain. Synthesis of new compounds of potential value in perfumery from $\Delta 3$ carene. Avadh University.

15. Mohana Raju, K. Studies on the chemistry of plant products : Synthetic studies in coumarins. Sri Krishnadevaraya University.

16. Neera. Synthetic studies in insect sex-pheromones and related compounds. Panjab University.

17. Pandita, Kuldeep. Analytical applications of some polyphenols. University of Jammu.

18. Patel, Girishchandra Raojibhai. Condensation polymers : Friedel—Crafts polymers from DDE. Sardar Patel University.

19. Patil, Chandrashekharagoud Shiddangoud. Studies on retravalent metal complexes. Karnatak University.

20. Sachar, Renu, Studies on complexes of copper (II) carboxylates with some nitrogen and oxygen donors. University of Jammu.

21. Sarawadekar, Raghunath Gundu. Structure and activity of metal phosphate catalysts. Shivaji University.

22. Sawant, Vijaya Ramchandra. Acidity functions and colour evaluation of some new Hammett indicators. Shivaji University.

23. Sengupta, Aniruddha. Studies on some organotin aryloxy acetates : Synthesis of potential hepta coordinated triorganotin carboxylates. North Bengal University.

24. Singh, Rajeshwar. Studies on a synthetic drugs : Pt. I-Synthesis of rigid analogs of catecholamines and; Pt. II-Synthesis of potential antitumour agents. Avadh University.

25. Singh, Sheo Bux. Chemical studies of steroidal saponins. Avadh University.

26. Verma, Ranjit Singh. Oxidative voltammetry of organic compounds including pharmaceuticals and drugs in aqueous and nen-aqueous media at the tubular graphate electrode. Panjab University.

27. Yadav, Ashok Kumar. Studies on electrochemical oxidation and reduction of some organic compounds. University of Rajasthan.

28. Yadava, Sarvanad Singh. Studies on molecular interactions in solution. University of Gorakhpur.

Earth Sciences

1. Das, Chiranjib. Studies on geology and micropalaeontology of the Sylhet limestone around Lumshnong, Jaintia Hills, Meghalaya. Panjab University.

2. Gyani, Khem Chand. Petrochemical studies of the charnockites and associated rocks of Bandanwara Singhwal region, Ajmer District, Rajasthan. University of Rajasthan.

3. Khandelwal, Nortan Mal. Petrochemical studies of the banded gneissic complex between Masuda and Rampura, Ajmer Dist. University of Rajasthan.

4. Madhava Rao, N. Seismo—tectonic studies of the Alpine-Himalayan belt. I.S.M., Dhanbad.

5. Venkata Narappa, Kottala. Recent foraminiferids from the Godavari and Krishna river estuaries, East Coast of India. Andhra University.

Engineering & Technology

1. Ameer Ahmed, T.M. Surfaces in biological treatment of wastewater. Bangalore University.

2. Choubey, Maneesh. Synthesis of mechanism incorporating manufacturing tolerance. University of Jabalpur.

3. Raju, N.M. Design of roof bolting systems : Investigations in Indian mines. I.S.M., Dhanbad.

4. Sahi, Dalvindar Singh. Plastic analysis of horizontally curved reinforced concrete T section beams. Andhra University.

5. Sahoo, Mahesha Chandra. Motion of single-span and multi-span beams under transverse impact. Sambalpur University.

6. Satyanarayana, M.R. Thyristorised Kramer control of slip-ring induction motos, I.S.M., Dhanbad.

BIOLOGICAL SCIENCES

Anthropology

1. Injeti, Moses Samuel. A study of physical growth and development of Valmiki and Bagata boys of Visakhapatnam Dist. Andhra Pradesh. Andhra University.

Biochemistry

1. Prema, P. Effect of dietary starches on lipid metabolism. University of Kerala.

2. Sahney, Harsh. Studies on iron complexes of potential biochemical importance with special reference to those suitable for the fortification of milk and possibly of other foods and feeds. Panjab University.

Botany

1. Biswas, Asokkumar. Metabolic basis of penicillin sensitivity in higher plants. University of Calcutta.

2. Das Mahendra Narayan. Floristic studies of Vaishali District, Bihar with special reference to weeds and cultigens. University of Bihar.

3. Dayama, Om Prakash. Studies on the ecology of microcommunities in a selected area of Eastern Rajasthan. University of Rajasthan.

4. Diwanji, Pramodini. Embryological studies in the Gramineae. University of Indore.

5. Dubey, Kishore. Studies on volatile activity of some higher plants against fungi causing seed deterioration in storage. University of Gorakhpur.

6. Hamal, Irshad Ahmed. Cytotaxonomy of the umbellifers of Kashmir Himalayas. University of Jammu.

7. Jain, Abha. Regulation of seedling growth and nitrogen metabolism by phenolic acids in maize. University of Indore.

8. Khosla, Man Mohan Kumar. Cytogenetical investigations in the genus ocimum with special reference to the Sanctum group. University of Jammu.

9. Mahendra Pal. Studies on the mycoses caused by Aspergillus fumigatus and Cryptococcus neoformans in animals. Kumaun University.

10. Mitra, Basantika. Comparative vegetative anatomy of the Indo-Malayan Magniferae (Anacardiaceae). University of Calcutta.

11. Naik, Gajanan Ramchandra. Physiological studies in sugarcane. Shivaji University.

12. Narayanan Nair, K.K. Flora of Courtallum on the Western Ghats of India. University of Calicut.

13. Padhy, Bhaskar. Impact of photoperiod and seasonal sowing in rice with some studies on the biochemical and histological aspects. Berhampur University.

14. Prasad, S.V. Krishna. Ecophysiology of opium poppy with special reference to nitrogenous fertilizers. Vikram University.

15. Patil, Pandharinath. Physiological and biochemical investigations on Solanum viarum Dunal (syn. Solanum khasianum Clarke). University of Indore.

16. Patil, Tatyasaheb Malgonda. Phosiological studies in Parthenium hysterophorus. Shivaji University.

17. Saxena, Kiran. Role of legumes in the production and nitrogen economy of grassland in Malwa Plateau. University of Indore.

18. Sharma, Jai Ram. Systematics and ecology of the family Boletaceae. Himachal Pradesh University.

19. Sharma, Shashi Bala. Studies on the witches' broom phenomena characteristics of the yellow type diseases of the Compositae of Rajasthan. University of Rajasthan.

20. Sheikh, Abdul Samad. A detailed ecophysiological study of two newly introduced varieties of cotton viz. Badnawar-I and Khandawa-II. Vikram University.

21. Sood, Sarvesh Kumar. Embryological studies in some Himalayan Orchidaceae. Nagarjuna University.

22. Verma, Vijeshwar. Cytogenetical and hybridisation studies in the genus Cymbopogon Spreng. University of Jammu.

Zoology

1. Agnihotri, Usha. Studies on morphometry, osteology, haematology, biology and fecundity of local species of genus Channa Gronov. Vikram University.

2. Ansari, Iftekhar Ahmad. Studies on the effects of industrial pollution on the fish and fisheries of Tanda, Faizabad. University of Gorakhpur.

3. Bohra, Kanti Lal. Ontogenetic development and seasonal changes in the gonads of the skipper frog, Rana cyanophlyctis (Schneider). University of Rajasthan.

4. Brahmachari, Kana. Biochemical and nutritional studies on the effects of several environmental agents in the animal system. University of Calcutta.

5. Dahake, Dnyandeo Laxman. Studies on the neuroendocrine system of the magascolecid species Eudichogaster (Gates). Nagpur University.

6. Das, Shyamal Kumar. Studies on some aspects of bionomics and on developmental stages of certain sarcosaprophagous flies in Calcutta, India. North Bengal University.

7. Datta, Aparna. Studies on fish venom. University of Calcutta.

8. Dhange, Sidram Maharudrappa. Acid phosphatase in reproductive organs of some vertebrate seasonal breeders. Shivaji University.

9. Hanumantha Rao, Lakkavajjhala. Studies on taxonomy of the fishes and on the biology of Heteropneustes fossils (Bloch 1974) of Lake Kolleru in Andhra Pradesh. Andhra University,

10. Kalamade. Imamsab Shamansab. Lipids of salivary glands. Shivaji University.

11. Manna, Durgacharan. Reproductive biology of some common non-poisonous snakes (male) of India. University of Calcutta.

12. Rana, Saroj Kumari. A comparative study of the effects of some terpenoid JH analogues and chemosterilant 'Hempa' on cotton stainer, Dysdercus koenigu (F). Panjab University.

13. Ranjana. Comparative morphology of the osteocranium, the Weberian appratus, the girdles and the caudal skeleton of Indian cyprinid fishes with their value in systematics. Panjab University.

14. Pande, Jyotsna. Studies on certain aspects of pollution in Nainital lake. Kumaun University.

15. Pandit, Ashok Kumar. Biotic factor and food chain structure in some typical wetlands of Kashmir. University of Kashmir.

16. Satyanarayan, Shanta. Toxicity studies of some chlorinated hydrocarbons and their effect on fish. Nagpur University.

17. Shukla, Subhash Chandra. Histomorphology and physiology of alimentary canal of millipede, Trigoniulus lumbricinus (Gerstacku). University of Gorakhpur.

18. Singh, Ravinder Kumar. Studies on fish and fisheries of Ujjain. Vikram University.

Medical Sciences

1. Das, Ratna. Clinical trends in Eclampsia with study of plasma fibronogen and fibrinolysis. University of Calcutta.

2. Hrishi Keshvan, H.J. Role of central serotonin and norepinephrine to the relationship in the modulation of pharmacology and behavioural effects of various psychopharmacological agents. University of Rajasthan.

Agriculture

1. Anand Parkash. Dynamics of various phosphatic fertilizers in calcareous and sodic soils under wheat-paddy rotation. Haryana Agricultural University.

2. Thakur, Parma Ram, Fertility management and plant population studies on three varieties of hookah tobaco (Nictiana rustica L) under mid-hill conditions of Himachal Pradesh. Himachal Pradesh Krishi Viswavidyalaya.

Veterinary Science

1. Gowda, Honne. Effects of malathion on certain aspects of sympatho-adrenal functioning. Haryana Agricultural University.

2. Rajor, Raj Bans. Technological studies on the utilization of butter milk and soyabean for the manufacture of 'softy' ice cream. Panjab University.

3. Singh, Raj Pal. Genetic investigations on some biochemical and performance traits in a synthetic population of white leghorns. Haryana Agricultural University.

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CLASSIFIED ADVERTISEMENTS

INDIAN INSTITUTE OF TECHNOLOGY
KHARAGPUR

Advertisement No. R/6/81.

Applications are invited for the undermentioned posts at Indian Institute of Technology, Kharagpur (West Bengal).

Posts

I. (a) Senior Technical Assistant/ Aeronautical Engineering Department— One post—(Reserved for Scheduled Caste).

Scale of Pay: Rs. 550-25-750-EB-30-900/- plus D.A. as admissible.

Age: Between 25 & 35 years.

Qualifications & Experiences

Essential

1) Good general education preferably Intermediate Science or equivalent with Physics, Chemistry & Mathematics. 2) Diploma in specific branch of study or equivalent. 3) Experience of at least 5 years in specified fields in repair, design and construction of various types of equivalent and accessories.

Job requirements

a) Must have sound knowledge in testing, handling, repair and maintenance of the electrical and electronic systems of testing machines and wind tunnels of the department. b) Should be capable of carrying out calibration, repair and maintenance of various electronic measuring instruments of the department. c) Should be able to help U.G. & P.G. students and research scholars in layout and installation of electronic instruments. d) Must maintain the stores placed under his charge. e) Must perform such other duties as may be assigned to him from time to time.

b) Senior Technical Assistant (Computer Operator)—Computer Centre—Two posts.

Scale of Pay and Age are the same as at Para I(a) above.

Qualifications & Experiences

Essential

1) Degree in Computer Science/ Engineering. *OR* 2) Diploma in Computer Science/Engineering with 5 years experience in repairs, maintenance and construction of various types of computer equipment and accessories: *OR* 3) Degree in Science/Mathematics with 8 years experience in repairing, maintenance and construction of various types of computer equipment and accessories.

Job requirements

Sound knowledge of operaring a 3rd generation computer system with knowledge of computer programming.

II. Overseer (Elect.)/Estate Maintenance Unit—One Post

Scale of Pay: Rs. 425-15-500-EB-15-560-20-700/- plus D.A. as admissible.

Age: Above 22 years.

Qualifications & Experiences

Overseer's certificate or a Diploma in Elec. Engg. with some experience in building works and elec. Works. Electrical Supervisor's Licence is an essential qualification.

Knowledge of Bengali, Telugu, Hindi will be an additional qualification and only men of proved capacity for handling labour need apply.

Job requirements

i) Knowledge of preparing the estimate of Educational Buildings, Residential Buildings, Multi-storied Bldg., Sub-station, Distribution net work etc. ii) Supervision and preparation of inventory of the Electrical works. iii) Knowledge of maintenance of H.T. and L.T. net work. iv) Conversant with the I.E. Rules. v) Knowledge of preventive maintenance.

III. Nurse/B.C. Roy Technology Hospital—One post (Temporary)

Scale of Pay: Rs. 425-15-560-EB-20-640/- plus D.A. as admissible. (Without messing allowance). They will also be entitled to an allowance of Rs. 15/- p.m. for washing and Rs. 200/- per annum for Uniform.

Age: Normally not more than 35 years.

Qualifications & Experiences

i) Passed Matriculation or equivalent. 2) 'A' Grade certificate in Nursing and Midwifery. 3) Should be registered Nurse with experience in a reputed Hospital or Nursing Home and Trained in Operation Theatre work.

IV. Caretaker-cum-Manager-Guest House—One post

Scale of Pay: Rs. 380-12-440-EB-15-560-EB-20-640/- plus D.A. as admissible

Age: Ordinarily not more than 35 years.

Qualifications: a) Essential

i) Graduate in Arts, Commerce or Science or a Diploma in Catering/ Hotel Management or a Bachelor's degree in Home Science or equivalent. ii) Should have a pleasant personality and be capable of dealing with guests and distinguished persons who stay in the guest house.

b) Desirable

i) Experience as Manager/Caretaker in a responsible residential establishment like staff hostel, hostel guest or any hostel of repute. ii) Ability to speak fluently in Bengali, Hindi and English.

Job requirements

i) Will supervise the work of class IV staff of the Guest House. ii) Will be responsible for the maintenance of all Institute properties, including furniture, in the Guest House. iii) Will supervise the board and lodging arrangements of the guests/dignitaries. iv) Will be required to keep proper accounts of cash and stores relating the Guest House. v) Will be responsible for collection of charges from guests and deposit the money with the Institute Cashier. vi) Any other work that may be assigned to him by the Professor-in-charge of the Guest House.

V. Library Assistant/Library—Seven posts (Two posts are reserved for Scheduled Caste)

Scale of Pay: Rs. 380-12-440-EB-15-560-EB-20-640/- plus D.A. as admissible.

Qualifications & Experiences

Essential

A graduate with a degree in Library Science (one year course after graduation) or its equivalent.

Job requirements

1) Routine technical job including cataloguing of books, 2) Attending Readers' enquiry. 3) Attending circulation counter. 4) Filling of catalogue cards. 5) Any other duties as may be assigned by the Librarian. 6) Knowledge of typing desirable.

VI. Pharmacist-cum-Dresser/B.C. Roy Technology Hospital—One post

Scale of Pay: Rs. 380-12-500-EB-15-560/- plus D.A. as admissible.

Age: Below 35 years.

Qualifications & Experiences

Must pass Pharmacist examination from a teaching Institution recognised by University after passing School Final or equivalent ('A' certificate).

Should have First Aid/Dressership certificate from a recognised Institution or organisation.

Desirable

Experience in dressership in a well equipped hospital.

Job requirements

i) Dressing work in O.P.D., Indoor, and Emergency; ii) To assist the Medical Officers during any Surgical and Orthopaedic work; iii) To do sterilization of surgical equipments & dressing; iv) To work as Pharmacist as and when required; v) To handle stores in the absence of Store-keeper and to assist the Store-keeper in his day to day maintenance of Stores; vi) Any other job as may be deemed fit by the S.M.O.

VII. a) Mechanic Gr. 'A'/Cryogenics Engineering Centre—One post.

b) Mechanic Gr. 'A' (Key Punch Operator)/Computer Centre—One post.

c) Mechanic Gr. 'A' (Automobile)/ Estate Maintenance Unit—One post.

Scale of Pay: Rs. 380-12-500-EB-15-560/- plus D.A. as Admissible.

Age: Ordinarily not more than 35 years.

Qualifications & Experiences: Essential

i) Good general education preferably Matriculate or equivalent. 2) 15 years experience including apprenticeship in a recognised workshop relaxable in case of higher technical proficiency. 3) Ability to manufacture, construct and erect from working drawings and ability to make simple demensioned sketches. 4) Ability to work within prescribed tolerances. 5) Knowledge of Hindi and Blue Printing reading. 6) Ability to impart instructions (Desirable).

Job requirements

(for the post of Mech. 'A'/Cryo.Engg)

i) Good practical competence as machinist to handle lathe, Milling and Drilling Machine. 2) Experience handling and fabricating Cryogenic instruments. 3) Ability to fabricate, assemble high vacuum, Low temperature systems.

(for the post of Mech. 'A'/Comp. Centre)

Ability to give 14,000 key depression (both Alpha/Numeric) per hour by IBM 029/026 Punching Machine. Should have programming knowledge of Unit Record Machines like IBM 407/402 etc.

or

Ability to understand defect in Unit Record Machines like 029/026, 077, 407/402 etc. with sound knowledge in repair of Electronics/Electromechanical equipments.

Desirable: Knowledge in repairing work of Transformer, Relay, Motor, Airconditioner etc. Ready to accept shift duty.

(for the post of Mech. 'A'/Automobile)

i) Knowledge of repairing of the Diesel and Petrol driven vehicle. 2) Knowledge of schedule maintenance of the vehicle. 3) Knowledge of diagonising the fault and able to repair independently.

VIII. Mechanic Gr. 'B'/Civil Engineering Department—One post (Post is reserved for Scheduled Caste).

Scale of Pay: Rs. 330-8-370-10-400-EB-10-480/ plus D.A. as admissible.

Age: Not less than 25 years.

Qualifications & Experiences

Same as for Mech. Gr. 'A' (Sl. No. VII) except that the length of experience should not be less than 8 years.

Job requirements

(for the post of Mech. 'B'/Civil Engg.)

i) Ability to read drawing and produce job requiring skill in any two of the following trades: a) machining b) welding, c) carpentry, d) fitting, 2) Identification and preparation of list of tools. 3) Knowledge of working principles of testing equipment—mechanical or electrical.

IX. Driver — Estate Maintenance Unit (E & M)—One post (Post is reserved for Scheduled Caste).

Scale of Pay

i) for light duty: Rs. 260-6-326-EB-8-350/- plus D.A. as admissible.

ii) for heavy duty: Rs. 260-6-290-EB-6-326-8-366-EB-8-390-10-400/- plus D.A. as admissible.

(If Heavy duty drivers are assigned exclusively to Heavy vehicles the revised scale of Rs. 320-400/- is applicable).

Age: Between 25 and 30 years.

Qualifications & Experiences

Must have read upto Class VI standard and must be of active habits with good physique. Candidates possessing driving licence both for light and heavy vehicles need apply. Knowledge of vehicle maintenance and running repairs is an additional qualification.

N.B.: The qualifications regarding experience is relaxable at the discretion of the competent authority in the case of candidates belonging to the Scheduled Castes or Scheduled Tribes, if any stage of selection, the competent authority is of the opinion that sufficient number of candidates from these communities possessing the requisite experience are not likely to be available to fill up the vacancies reserved for them.

Applications on plain paper, stating Name, Father's Name, Present Address, Permanent Address, Qualifications & Experience in detail, Date of birth, Nationality etc. in English accompanied with an application fee (non-refundable) of **Rs. 3.00 (Rs. 0.75 for SC/ST) for categories from I to IV and Re. 1.00 (0.25 for SC/ST)** for other categories payable by means of crossed Indian Postal Order to the Indian Institute of Technology, Kharagpur at Kharagpur-2 Post Office should reach the Registrar, I.I.T., Kharagpur (West Bengal) by the **30th October, 1981**.

Candidates belonging to Scheduled Caste/Scheduled Tribe community must enclose attested copies of caste certificates from the competent authority.

Applicants who are in the employment of Government/Semi-Government organisations or of any Government undertaking must send their applications through proper channel.

The maximum age limit shall be increased by 5 years in the case of candidates belonging to Scheduled Castes and Scheduled Tribes.

A.K. Sur
REGISTRAR

KONKAN KRISHI VIDYAPEETH
DAPOLI, DIST. RATNAGIRI

Advertisement No. EST/A-I/Advt./XV/13541/of 1981, Dated : 29-9-1981.

Applications in the prescribed form are invited for the undermentioned posts. Application forms can be obtained from the Office of the Registrar, Konkan Krishi Vidyapeeth, Dapoli. (Pin Code : 415 712), Dist. : Ratnagiri Maharashtra State, on sending a self-addressed envelope (10 x 23 cms.) with affixing postage stamps of 60 paise and a crossed Indian Postal Order of **Re. 1/- (Rupee one only)**, payable to the Comptroller, Konkan Krishi Vidyapeeth, Dapoli (415 712), Dist. Ratnagiri. Completed applications accompanied by a crossed Indian Postal Order worth **Rs. 5/- (Rupees five only)**. payable to the Comptroller, Konkan Krishi Vidyapeeth Dapoli, Dist. Ratnagiri, Maharashtra State, should reach this office not later than **10th November, 1981**. Applications received after the due date will not be considered. A separate application with separate fee is required for each post. Government Servants and the staff-working under the local bodies should necessarily apply through proper channel. However, an advance copy of the application may be sent by them to this office within the prescribed time-limit.

(I) The Vice-Chancellor's Office, Konkan Krishi Vidyapeeth, Dapoli

1. The Director of Extension Education — One post

(II) Faculty of Fisheries

2. Senior Scientific Officer — One post
3. Associate Professor of Fisheries Biology — One post
4. Associate Professor of Fisheries Hydrography — One post
5. Assistant Professor of Acquaculture — One post
6. Assistant Professor of Fisheries Hydrography — Two posts
7. Assistant Professor of Fisheries Technology — One post
8. Assistant Professor of Fisheries Resources, Economics and Statistics — One post

(III) Faculty of Agriculture

9. Assistant Professor of Agricultural Economics — One post (Reserved for S.C./S.T./D.T. & N.T.)
10. Assistant Professor of Agricultural Entomology — One post (Reserved for S.C./S.T./D.T. & N.T.)

(Indian Council of Agricultural Research Schemes) : All India Co-ordinated Rice Improvement Project

11. Rice Breeder — One post
12. Junior Rice Breeder — One post
13. Junior Rice Entomologist — One post

(VI) Faculty of Veterinary Science

14. Assistant Professor of Pathology — Two posts (One is reserved for S.C./S.T./D.T. & N.T.)
15. Assistant Professor of Extension — One post
16. Assistant Professor of Bacteriology — One post (Reserved for S.C./S.T./D.T.& N.T.)
17. Assistant Professor of Anatomy — One post

PAY SCALE

1. For the posts at Sr. No. 1 and 2
   Rs. 1500-60-1800-100-2000-125/2-2500
2. For the posts at Sr. No. 3 and 4
   Rs 1200-50-1300-60-1900
3. For the posts at Sr. No. 11
   Rs. 1100-50-1300-60-1600
4. For the posts at Sr. No. 5, 6, 7, 8, 9, 10, 14, 15, 16 and 17
   Rs. 700-40-1100-50-1600
5. For the posts at Sr. No. 12 and 13
   Rs. 700-40-1100-50-1300

QUALIF.CATION

For the posts at Sr. No. 1

Ph.D. in the discipline Extension relating to Agriculture, Veterinary or Fisheries plus fifteen years' experience after acquiring post-graduate degree in the field of teaching, research and/or extension education, plus experience in a responsible position in technical administration and ability to initiate and organise extension education programmes.

OR

Master's degree in the discipline of Extension relating to Agriculture, Veterinary or Fisheries plus fifteen years' experience after acquiring post-graduate degree in the field of teaching, research and/or extension education plus experience in a responsible position in technical administration and ability to initiate and organise extension education programmes plus outstanding achievements in the field of extension education.

For the post at Sr. No. 2

Essential

After Ph.D. in Fisheries Science/Zoology/Marine Biology, with a thesis on Fisheries or Marine Biological problem, seven years' experience in teaching or research in fisheries science and/or marine biology as evidenced by published research papers or in extension education.

OR

After Master's degree in Fisheries/Science/Zoology/Marine Biology, ten years' experience in teching or research in Fisheries Science and/or Marine Biology as evidenced by published research papers or in extension education.

Desirable

Experience in technical administration, ability to initiate and organise research.

For the posts at Sr. No. 3 and 4

Essential

After Ph.D. in Fisheries Science/Zoology/Marine Biology, with a thesis or marine biological or fisheries problems, two years' experience in teaching or research in fisheries science and/or Marine Biology as evidenced by published research papers or in extension education.

OR

After Master's degree in Fisheries Science/Zoology/Marine Biology, five years' experience in teaching or research in Fisheries Science and/or marine biology as evidenced by published research papers or in extension education.

OR

Master's degree in Fisheries Science/Zoology/Marine Biology, with ten years' total experience in teaching or research in Fisheries Science and/or Marine Biology as evidenced by published research papers or in extension education.

Note—(a) For the post at Sr. No. 3 experience in Fisheries Biology is desirable.

(b) For the post at Sr. No. 4 experience in Fisheries Hydrography is desirable.

For the posts at Sr. No. 5, 6, 7 and 8

Ph.D. in Fisheries Science/Zoology/Marine Biology, with a thesis on Fisheries or Marine Biological problem.

OR

After Master's degree in Fisheries Science/Zoology/Marine Biology, two years' experience in teaching or research in Fisheries Science and/or Marine Biology as evidenced by published research papers or in extension education.

OR

Master's degree in Fisheries Science/Zoology/Marine Biology, with a first class or equivalant C.G.P.A. either at Bachelor's degree or Master's degree level.

Note—(a) For the post at Sr. No. 5 experience in Fisheries Acquaculture is desirable.

(b) For the post at Sr. No. 6 experience in Fisheries Hydrography is desirable.

(c) For the post at Sr. No. 7 experience in Fisheries Technology is desirable.

(d) For the post at Sr. No. 8 experience in Fisheries Resources Economics and Statistics is desirable.

For the post at Sr. No. 11

After Ph.D. in Agricultural Botany, two years' experience in teaching or research as evidenced by published research papers or in extension education.

OR

After Master's degree in Agricultural Botany, five years' experience in teaching or research as evidenced by published research papers or in extension education.

OR

Master's degree in Agricultural Botany, with ten years' total experience in teaching or research as evidenced by published research papers or in extension education.

For the posts at Sr. No. 9, 10, 12, 13, 14, 15, 16 and 17

P.hD. in the respective subject.

OR

After Master's degree in the respective subject, two years' experience in teaching or research as evidenced by published research papers or extension education.

OR

Master's degree in the respective subject, with a first class or equivalent C.G.P.A. either at Bachelor's degree or Master's degree level.

Note—(a) The respective subjects for the posts at Sr. Nos. 9, 10, 12, 13, 14, 16 and 17 are Agricultural Economics, Agricultural Entomology, Agricultural Botany, Agricultural Entomology, Veterinary Pathology, Veterinary Bacteriology and Veterinary Anatomy, respectively.

(b) For the post at Sr. No. 15, a basic degree in Veterinary Science or Agriculture or Dairying is essential. Other things being equal, a graduate in Veterinary Science will be preferred.

NOTE

1. Maximum age-limit as on 10th November, 1981 will ordinarily be 40 years for the posts mentioned at Sr. No. 1, 2, 3, 4, 11 and 30 years for the remaining posts. Maximum age-limit is relaxable upto 5 years in deserving cases at the discretion of the University. The age-limit is not applicable to persons already employed in this University.
2. Age relaxation for candidates belonging to S.C./S.T./D.T.&N.T./O.B.C. as per the State Government Rules.
3. The pay scales of the above posts carry allowances admissible as per the rules of the University.
4. If response from highly qualified and more experienced candidates is adequate, those with less qualifications or experience may not be called for interview, even though, they fulfil the minimum qualifications for the posts.
5. The fact that, the posts are advertised, does not mean that all the posts will be filled-in.
6. Application to be received through proper channel must reach the University office within 15 days from the last date of submission of the applications.
7. The posts at Sr. No. 11, 12 and 13 are sanctioned by the Indian Council of Agricultural Research for a limited period.
8. The number of posts may be increased or decreased.
9. Selected candidates can be posted or transferred at any of the Campuses Centres under the jurisdiction of the University.
10. Nomenclature of the posts can be changed by the University as and when need arises.
11. Incomplete applications and applications received after the last date shall not be taken into consideration.
12. The applicants should satisfy all the requirements, such as, qualifications, experiences, on or before **10th November, 1981**.
13. Mere eligibility does not vest any right on the candidate for being called for the interview.

Canvassing in any form will completely disqualify a candidate for employment under this University.

R.B. Kumbhar
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY
KHARAGPUR

Advertisement No. R/7/81

Applications are invited for the undermentioned posts at the Indian Institute of Technology, Kharagpur, West Bengal.

Academic Posts

The qualifications, experience etc. required for Professors, Assistant Professors and Lecturers are given below :

I. Professors

Scale of Pay : Rs. 1500-60-1800-100-2000-125/2-2500/- plus D.A. as admissible.

Age : Preferably below 50 years.

Qualifications & Experience

Essential

(i) A good academic record with a Bachelor's or Master's degree in the appropriate branch and a Doctorate degree.

(ii) Twelve year's experience in the field of specialisation prescribed, of which at least 5 years should be in teaching and/or research.

(iii) Published research work of good quality in journals of repute.

(iv) Experience in guiding research.

Desirable

(i) Experience of teaching post-graduate Classes.

(ii) Good design and/or industrial experience.

N.B. If a person is not found suitable for the post of Professor he may be offered the post of Associate Professor in the grade of Rs. 1500-2000/-.

II. Assistant Professors

Scale of Pay : Rs. 1200-50-1300-60-1900/- plus D.A. as admissible.

Age : Preferably between 30 and 45 years.

Qualifications & Experience

Essential

(i) A good academic record with a Bachelor's or Master's Degree in the appropriate branch and a Doctorate degree.

(ii) Seven years' experience in the field of specialisation prescribed, of which at least 2 years should be in teaching and/or research.

Desirable

(i) Published research work of good standard.

(ii) Experience in guiding research.

III. Lecturers

Scale of Pay : Rs. 700-40-1100-50-1600/- plus A.D. as admissible.

Age : Preferably between 25 and 38 years.

Qualifications & Experience

Essential

(i) A good academic record with a Master's degree in the appropriate branch.

(ii) Two years' professional experience.

Desirable : A Doctorate degree.

(Some posts are reserved for SC/ST candidates. In the event of non-availability of suitable SC/ST candidate, the reserved posts would be treated as unreserved.)

Note : The following are applicable to posts of Professors, Assistant Professors and Lecturers :

(a) In all cases experience means experience gained after obtaining the Master's degree.

(b) For posts in Industrial Management Centre, Mining Engineering, Naval Architecture and Architecture & Regional Planing Departments, if suitable candidates with prescribed essential qualifications are not available then the minimum educational requirements may be relaxed.

(c) Relaxation of the minimum educational requirements may also be done in the case of candidates having outstanding research achievements or long and meritorious industrial/design experience.

Vacancies exist in the following disciplines and in the cadres noted against each. **Applicants must clearly state the cadre and the discipline for which they are a candidate.**

A. Computer Science & Engineering

Professor — One post.

Specialisation in one or more of the following :

System Hardware/System Software/Application Software/Microprocessor.

B. Cryogenics Engineering Centre

Professors : Two posts.

Specialisations

Cryogenic System/Heat Power Engineering/Chemical Engineering Plant Design/Heat and Mass Transfer.

(N.B. : Those who applied against Advt. No. R/4/81 need not apply again).

C. Industrial Management Centre

Professor : One post.

Specialisation in one or more of the following :

Maintenance Engineering and Management/Industrial Management/Industrial Engineering & Operations Research.

D. Naval Architecture

Professor : One post.

Specialisation in one or more of the following :

Ship Design/Ship Hydromechanics/Ship Motions/Ship Structures/Ship Production.

(For Ship Hydromechanics and Ship Motions, candidates with doctorate in Mathematics and more than 10 years experience in teaching Naval Architecture may apply. For Ship Structures, candidates with doctorates in Civil Engineering and sound knowledge of Ship Structures may apply).

E. Quality Improvement Programme (Temporary)

Professor : One post

Specialisations : Electrical Engineering.

Desirable

Previous experience in Curriculum Development in Electrical Engineering or in any other branches of Engineering.

F. Radar & Communication Centre

Professor : One post.

Specialisation in one or more of the following :

Microwave & slit : Engineering/Antenna Engineering/Digital Communication Systems/Digital Signal Processing/Fibre Optics.

G. Agricultural Engineering

Assistant Professor : (Aquaculture) — One post.

Specialisation in the following :

Degree in Mechanical Engineering or Naval Architecture with seven years' experience in the area of design and testing of fishing crafts and gears.

H. Architecture & Regional Planning

Assistant Professors : Two posts.

Specialisation in one or more of the following :

Architecture/City Planning.

I. Computer Science & Engineering

Assistant Professors : Two posts.

Specialisation in one or more of the following :

System Hardware/System Software/Application Softwore/Microprocessor.

J. Cryogenics Engineering Centre

Assistant Professors : — Three posts.

Specialisation in one or more of the following :

Cryogenic Systems/Low Temperature Physics/Chemical Engineering Plant Design/Heat and Mass Transfer.

K. Humanities & Social Sciences

Assistant Professor : One post.

Specialisation in one or more of the following :

Econometrics/Managerial Economics/Financial Management.

N.B. Candidates with a knowledge of Industrial Accountancy and Costing will be given preference.

L. Mechanical Engineering

Assistant Professors : Three posts.

Specialisation in one or more of the following :

Fluid Mechanics and Heat Transfer/Production Science & Technology/Mechanical Handling Science & Technology/Measurement and Controls/Mechanics of Solids/Machine Dynamics/Machine Design.

M. Mining Engineering

Assistant Professors : Two posts.

Specialisation in one or more of the following :

(a) Mining Engineering (b) Mine Environmental Engineering

(c) Mining Machinery and Mechanisation.

N.B. (For (c) above degree holders in Mechanical Engineering may also apply).

N. Post Harvest Technology Centre :

Assistant Professors : Two posts.

Specialisation in one or more of the following :

Post Harvest Technology/Crop Processing.

O. Radar & Communication Centres

Assistant Professor : One post.

Specialisation in one or more of the following :

Fibre Optics/Microwave & Radar Engineering.

P. Humanities & Social Sciences

Lecturer (in French) : One post.

Specialisation

A good Master's Degree or a Post-graduate diploma in French with some teaching experience.

Desirable

Knowledge of technical words in French language, particularly in Science and Engineering.

N.B. : Those who have applied against previous Advertisement No. R/4/80 need not apply again.

Application form may be had from the Registrar on request along with an unstamped self-addressed envelope of size 23 cm x 10 cm. Application accompanied with an application fee (non refundable) of **Rs. 7.50 (Rs. 1.87 for SC/ST candidates)** payable by means of crossed Indian Postal Order to Indian Institute of Technology, Kharagpur at Kharagpur-721302 post Office should reach the Registrar, I.I.T., Kharagpur-721302 (West Bengal) by the **24 November, 1981** positively.

Applicants who are in the employment of Government/Semi-Government Organisations or of any Government undertaking must send their applications through proper channel.

A K. Sur
REGISTRAR

UNIVERSITY OF RAJASTHAN

JAIPUR

Advertisement No. 11/81

Applications are invited for the undermentioned posts so as to reach this office on or before **Saturday the 31st October, 1981** in the prescribed form available from the Registrar's office on pre-payment of **Rs: 4/ (Rs. 3 extra in case required by posts)**, in the case of person already in employment the applications are to be sent through proper channel. Details of qualifications etc. will be made available with the application form

1. Professor in the scale of Rs. 1500-60-1800-100-2000-125/2-2500. Tagore Professor in History & Indian Culture—1, Professor of History—1, Mathematics—1, Jain Studies—1, Physics (Solid State Physics)—1, Sufism—1, Economics—1 and University Service Instrumentation Centre—1.

2. Readers: in the scale of Rs. 1200-50-1300-60-1900. Psychology—1, Indian Philosophy (Special Assistance Programme)—1, Political Science—1, Political Science (University Leadership Project in Political Science)—1, History—2, Geography—1, Mathematics—1, Chemistry—3, Botany—1, Business Administration—1, Law—1 and Sociology—2.

3. Lecturers : in the grade of 700-40-1100-50 1600. Home Science—2, Mathematics—1, English—3, Physics—4, Economics—1, History—4, Dramatics—1, South Asia Studies Centre—1, Lecturer Translation (for University Leadership Project in Political Science—1, Law—8 and Jain Studies—1.

Persons who have already applied in response to University Advertisement Nos. 2/80, 5/80, 7/80, 9/80, 19/80 and 29/80 need not apply afresh except for the post of Reader in Indian Philosophy (For Special Assistance Programme) and Business Administration. They should however intimate to the University that they are still desirous to be considered for the post applied for on the basis of their earlier application sent in response to the aforesaid advertisements. They may also send particulars of their additional qualifications and experience etc. acquired since then on plain paper by **31st October, 1981**. The university reserves the right to alter the number of posts in any cadre or subject.

The University also reserves the right to consider person who may not have applied particularly for the post of Professors.

REGISTRAR

ALIGARH MUSLIM UNIVERSITY

ALIGARH

Advertisement No. 8 81-82

Applications on the prescribed form are invited for the following post:

Manager. A M U. Press. Scale Rs. 1100-50-1600 plus allowances.

Qualifications

(i) Essential : (a) Must be at least a graduate. (b) Possess Diploma in printing technology from a recognised institution. (c) Have ten years experience in technical and supervisory jobs out of which atleast three years experience should be of working in a responsible capacity in a Press of repute. (d) Have knowledge of costing of jobs and administration rules, including Factory Act and Rules, E.S.I., P.F. etc. (e) Knowledge of English and Hindi.

Preference will be given to those who have knowledge of Urdu and have worked in Government/Semi Government Press or in any other Press of repute.

(ii) Desirable: Good command over Urdu and experience of Urdu printing, particularly of running an offset press.

Age : Not below 30 years and not exceeding 50 years as on the last date of submission of application.

(**Note**: The incumbent of the post would be an employee of AMU Press and not of the Aligarh Muslim University.)

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) either personally or by sending a self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is **30.11.1981**. Incomplete applications and those received late may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single Second Class Railway fare only.

Mahmood Ali
REGISTRAR

GUJARAT AGRICULTURAL UNIVERSITY

SARDAR KRISHINAGAR-385506.

Advt. No. 6/81

Applications are invited for the following posts for Gujarat Agricultural University. The candidates who fulfil the following qualifications and desire to apply may send their application on plain paper with six copies of bio-data to the Registrar, Gujarat Agricultural University, Sardar Krishinagar, Dist. Banaskantha-385506.

Name of the post and pay scale	Required Qualifications
1. Planning Officer Rs. 1300-1700.	**Educational qualification and experience** Second Class Post-graduate degree in Statistics/Mathematics/Economics etc. and about 10 years field experience. **Age** : Not more than 45 years. (Relaxable in case of University Employee.) **Note** : Job requirements of Planning Officer consist of Planning, Programming, monitoring and evaluation of Plan Programmes in teaching, research and extension education for the disciplines of Agri., Dairy, Home Science and Veterinary faculty.
2. Director of Students Affairs. Rs. 900-1500.	**Essential** (i) A Second Class Bachelor's degree of a recognised University and a Master's degree in Arts, Science, Commerce or Agriculture and allied sciences. (ii) At least 5 year's experience in organisation of students affairs including management of hotels and sports. **Preferable** A Bachelor's degree in Sociology, Physical Education or other related fields of specialization pertaining to the students' Welfare activities. **Age** : Not more than 48 years (Relaxable in case of University employee.)

The candidates applying for the post will have to send an I.P.O. of **Rs. 10/-** in favour of "Comptroller, Gujarat Agricultural University, Sardar Krishinagar (Dantiwada)". The candidates already in service of this University should send their application without I.P.O. through their respective officers. Please note that all candidates will have to appear for interview at their own cost.

The Posts are located at **(Dantiwada)** Sardar Krishinagar.

The last date of receiving applications is **22.10.81**.

REGISTRAR

UNIVERSITY NEWS, OCTOBER 15, 1981. **Regd. No. R.N. 7180/63 Postal Regd. No. D(C)-53**

UTKAL UNIVERSITY

VANI VIHAR, BHUBANESWAR-4

Advt No.Estt.1/886-C/25882/11
Dated 25-9-81

Applicatiods in seven copies are invited in the prescribed form alongwith attested copies of certificates and marklists of all examinations passed for the post of Professor of Zoology for the P.G. Department of Zoology of the University on or before **31-10-1981.**

Sl. No.	P.G. Deptt.	Post	No.	Specialisation
1.	**Zoology**	**Professor**	1	

Scaly of pay:-Rs.1500-60-1800-100-2001-25/2-2500/- Higher initial salary can be given in case of highly suitable candidates.

Age of Superannuation—60 years

Essential qualification ;

Professor : The Professor shall :

(i) be Scholar of eminence.

(ii) possess a good academic record with First or High Second Class Master's Degree in the subject. In cases of other suitably qualified candidates, the High second class at M.Sc. may not be insisted upon;

(iii) have a Doctorate Degree or published work of equivalent standard;

(iv) have independent published research work of high standard tn addition to the published work mentioned in (iii) above;

(v) be engaged in active research and have experience of successful supervision of doctoral research in the subject.

(vi) be a teacher for ten years out of which at least seven years should have been spent in regular teaching in Post-graduate/Honours classes-

Prescribed application forms can be had from the Registrar, Utkal Universty in person on payment of **Rs. 7.49 including local sales tax (Rupees seven and paise fortynine)** only or by post on receipt of crossed Indian Postal Order for **Rs. 9/- (Rupees nine)** only payably to the Registrar, Utkal University, Vani Vihar, Bhubaneswar-751004.

S.K. Ray
REGISTRAR

INDIAN SCHOOL OF MINES

Dhanbad-826004

No : 615208/81
Dated : 18th September 81

Applications are invited for admission to the following programmes offered at Indian School of Mines, which is deemed to be a University under the U.G.C. Act :

No.	Programme	Offering Deptt.	Eligibility Qualification
1.	One year M. Phil (Applied Chemistry)	Chemistry, Fuel & Mineral Engg.	Post-graduate degree in Chemistry with 60% marks relaxable 55% for SC/ST, Sponsored Candidates and for those with Field/Research experience or with special aptitude for Research. Candidates must have passed B.Sc. examination with Physics, Chemistry and Mathematics.
2.	Make-up Semester (16 weeks) of Advance Diploma in Mine Surveying	Mining Engg.	Matriculation/SSLC with Mine Surveyors Certificate of complacency granted under the Mines Act *Plus* one year experience as Surveyor in underground mines after obtaining the said certificate. Maximum Age Limit 45 years.

Programme No. 1—Candidates shall have to appear at a written test (of about two-hours duration) and Viva Voce at the School on the date intimated. No T.A. shall be paid for attending these tests. Unsponsored candidates are eligible for a Scholarship of Rs. 600/- p.m. for 12 months provided that they have obtained atleast 60% or 55% marks, as the case may be, in the qualifying examination. Only six candidates shall be admitted to the programme. 20% of the seats are reserved for SC/ST candidates if available; Otherwise they will be thrown open.

Preference will be given to sponsored candidates for Programme No. 1 and 2. (Sponsorship in this context means retention of lien on post and grant of suitable allowance). Applications of Sponsored candidates should carry suitable endorsement to this effect by the employer.

Procedure for applying : Application forms can be obtained by sending a crossed postal order for a sum of **Rupees Five only**, made payable to the Registrar, Indian School of Mines, Dhanbad-826004, along with a self-addressed unstamped envelope of size 23 cm× 10 cm.

LAST DATE FOR RECEIPT OF COMPLETED APPLICATIONS: OCTOBER 31, 1981.

S. P. Varma
REGISTRAR

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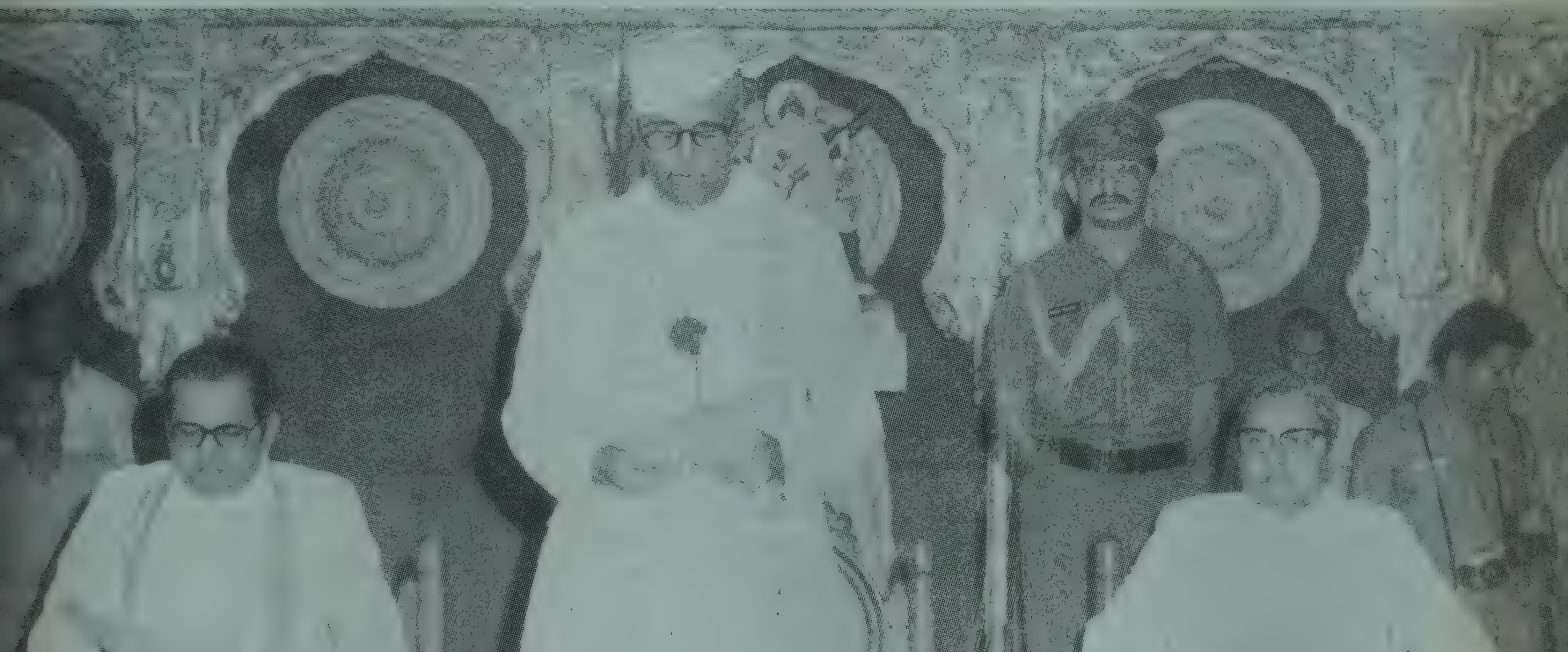
University News

17 NOV

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH NOVEMBER 1, 1981



Air Chief Marshal O.P. Mehra, Governor of Maharashtra, delivering the convocation address at the University of Poona.

CLASSIFIED ADVERTISEMENTS

KUMAUN UNIVERSITY
NAINITAL
Advertisement No. 1987
Dated 20-10-1981

Applications are invited for the following vacancies. The Lecturership in Political Science is temporary but likely to become permanent. The Readership in Geology is permanent and Lecturership in Geology is leave vacancy. The number of vacancies and the required fields of specialisation if any are indicated in each case. However the university reserves the right to alter the number of vacancies. Hill Development Allowance of Rs. 100/- P.M. and Dearness Allowance as admissible under university rules are also payable :

1. **Reader** : Rs. 1200-50-1300-60-1900. One in Geology (Structural Geology / Photogeology/Palaeontology). Experience of working in Himalayan terrain desirable.
2. **Lecturers** : 700-40-1100-50-1600. One in Political Science. One in Geology (Palaeontology). Leave vacancy, likely to be permanent.

Qualifications : (For the post of Lecturer Pol. Science & Geology).

1.1. Consistently good academic record with at least 50% marks at each of the intermediate/Higher Secondary and undergraduate examinations (for an overall average of 55% marks or more at these examinations) along with more than 54% marks at the Post-graduate Master's Level examination (or an equivalent degree of a foreign university) in the relevant subject ; and

1.2. Doctorate degree or research work of an equally high standard in the relevant subject.

For the post of Reader in Geology :

2.1. Same as 1.1 and 1.2 above.

2.2. Active engagement in research or innovation in teaching methods or production of teaching materials ; and

2.3. Five years' experience of teaching or research including at least three years as Lecturer or in an equivalent position.

Further details regarding qualification, service terms and permissible relaxation in qualifications will be provided with the application forms. Reservation for S.C. S.T. candidates as per normal rules.

Prescribed application forms available by post from the Registrar, Kumaun University, Nainital-263001 on payment of postal charges, etc., of **Rs. 5/-** by crossed postal order/bank draft (but not money orders) payable to Finance Officer, Kumaun University, along with self-addressed envelope of size 23 x 10 cms. Application forms will not be sent by post after **20-11-1981**. Form can also be obtained personally from the university office on payment of **Rupee One**.

Last date for receipt of application is **30-11-1981**. Applications received after the above date will not be entertained. Candidates who have already applied for the post of Reader Geology in response of Advertisement No. 1229 **dated 4-8-1981** need not apply afresh.

REGISTRAR

AGRA UNIVERSITY
SENATE HOUSE, AGRA
Appointments

Applications are invited for the following posts :

(a) **One Professor of Zoology** for M. Phil. Programme in the grade of Rs. 1500-60-1800-100-2000-125/2-2500. Post permanent.

(b) **Two Readers in Home Science**, one with specialization in Foods and Nutrition and the other in Home Management or Home Science Extension Education in the grade of Rs. 1200-50-1300-60-1900. Posts temporary but likely to be made permanent

(c) **Two Lecturers in Home Science**, one with specialization in Foods and Nutrition and the other in Clothing and Textiles, in the grade of Rs. 700-40-1100-50-1600. Posts temporary but likely to be made permanent.

(d) **One Lecturer in French** in the grade of Rs. 700-40-1100-50-1600. Post permanent.

(e) **One Lecturer in Hindi** in the grade of Rs. 700-40-1100-50-1600 in the leave vacancy upto 18.10.1982.

Qualifications

PROFESSOR

Either

Eminent scholarship with published work of high quality and active engagement in research and ten years experience of teaching or research and experience of guiding research at doctorate level ;

Or

Outstanding scholarship with established reputation for significant contribution to knowledge.

Reader

(a) Good academic record with a doctorate degree or equivalent published work, and active engagement in research or innovation in teaching methods or production of teaching materials ; and

(b) Five years experience of teaching or research including at least three years as lecturer or in an equivalent position ;

Provided that the requirement contained In clause (b) may be relaxed in case of a candidate who, in the opinion of the Selection Committee, has outstanding research work to his credit.

LECTURER

1. (a) A doctorate degree or research work of an equally high standard in the relevant subject ; and
   (b) Consistently good academic record (i. e. average of 55% marks in Intermediate/Higher Secondary and B.A./B.Bc. examinations taken together, or 50% marks in each of the aforesaid examinations separately) with first or high second class (i.e. more than 54% marks) Master's Degree or an equivalen degree of a foreign University in the relevant subject.
2. If the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in sub-clause (b) of clause 1.
3. Where in cases referred to in clause 1 no candidate possessing doctorate degree or equivalent research work is available or is considered suitable, a person possessing a consistently good academic record (Weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory or organisation, on the condition that he obtains a doctorate or gives evidence of research work of equivalent high standard within five years of his appointment, failing which he shall not be able to earn future increments until he fulfils the requirements.

Applications on the prescribed form must reach the undersigned by name within 21 days from the date of publication of the third insertion of this advertisement in the newspaper. The application form is obtainable from Assistant Registrar (Publications), Agra University, Agra, on payment of **Rs. 5/-** in cash at the University Counter or on payment of **Rs. 8/-** by Money Order addressed to Assistant Registrar (Publications), Agra University, Agra.

S. B. B. B. Singh
REGISTRAR

UNIVERSITY OF DELHI
DELHI-110007.
Advertisement No: 70/81
Dated : 14th October, 1981
I.F.G.I. Visiting Professorship in Industrial Management

The Industrial Finance Corporation of India have established a Visiting Professorship in the Faculty of Management Studies, University of Delhi. The Professorship is for a term of two years, which is renewable for further period of two years. The Chair is open for eminent scholars/teachers/Professionals in any specialization of Management

Kindly write for details to Professor N.R. Chatterjee, Dean, Faculty of Management Studies, University of Delhi, Delhi-110007, by **7.11.81**

REGISTRAR

UNIVERSITY OF ROORKEE
ROORKEE
CORRIGENDUM

The last date for receipt of applications for various posts against Advertisement No. DRIL/9 dated 10-9-1981 is hereby extended upto **15-11-1981**.

O.N. Chaturvedi
REGISTRAR

UNIVERSITY NEWS

VOL. XIX NOVEMBER 1
No. 21 1981

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Price 80 Paise

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Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor: ANJNI KUMAR

Role of Scientific and Engineering Societies in National Development

B. Ramachandra Rao*

The history of modern professional societies dates back to 16-17th centuries when scientists gathered together to form societies which over ages became prestigeous societies in developed countries. To cite a few examples, the French Academy of Science, Royal Society of U.K. are perhaps the oldest academies which have been in existence for more than four centuries. It was said that, in the Greek period, Pythagoras formed a secret society which met periodically and shared the knowledge acquired diligently by the scientific investigations of Pythagoras and his disciples.

From times immemorial academies have been formed to perform the functions of protecting and advancing the professional interests of its members. Before we discuss in detail the role and responsibilities of scientific and engineering societies let me quote a famous passage from an article published in "Current Science" by Prof. C.V. Raman on the eve of the formation of the Indian Academy of Sciences, which epitomises his views on the role of Science Academies.

> "The Academy will be a company of thinkers, workers and expounders comprising members of the New Estate upon whose achievements the world must in future depend for the preservation and advancement of civilisation. Their professional spirit must be service rendered with absolutely no thought of personal advantage. The amount of knowledge they place at the disposal of their country will determine its economic, social and political progress. An Academy of Science is not an ornament but an indispensable institution for directing the destinies of the nation. We have no hesitation in thinking that its establishment ought to be the natural and legitimate ambition of a progressive government and an enlightened public who should unstintingly provide the institution with sufficient funds for its service in their cause".

Traditionally scientific societies closely guard their rights and privileges as professional bodies. The cherished goal of any scientific society is to provide a platform for scientists working in the same or similar disciplines to interact, to discuss and to exchange ideas and thus contribute to the growth of knowledge in their subjects. Invariably they encourage their members to investigate and understand the physical, chemical and biological phenomena in nature. In due course, by virtue of their contributions not only to the advancement of

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**Vice-Chairman, UGC, New Delhi.*

science but also to the application of science and technology to the development activities, some of these societies gained sufficient prestige and authority to advise government on important matters such as science and technology policy, national level planning, establishment of advanced institutions and scientific agencies and any other matters referred to it for advice.

It is a well established fact that the progress of any nation is closely linked with the availability of competent, enthusiastic and dedicated scientists and engineers who have the necessary expertise to develop the technologies needed in the various sectors such as industry, agriculture, defence, health, environment, energy etc. A casual examination of the development of the various nations of the world reveals the close correlation that exists between the rate of economic growth and the quantity and quality of the scientific and engineeering manpower in that conutry. Invariably, the benefits of science and technology harnessed, either directly or through the national academies and societies of scientists and technologists, had an extraordinary impact in improving the well-being and security of the nation. It is true that every developing country has to evolve its own policies and plans for harnessing science and technology for exploiting their national and human resources. However, development being a trans-disciplinary and inter-disciplinary subject, it needs the combined and collective effort of teams of scientists and technologists working in diverse fields of specialisation. In this process, they should be extremely cautious in closely following the western model which may not be appropriate in developing countries like ours where the basic objective is not only development but also creating employment opportunities for the ever expanding population. It is quite possible that success could be achieved by following the western models in high technology areas which are not labour intensive and where highly qualified and trained personnel are generally deployed. Similar success may not be possible in areas which are less demanding of sophistication in such areas as small scale industries, transport, agriculture, etc.

The success of any country in applying science and technology for development depends on the correct choice of the model which is appropriate to the country based on the material and human resources and in this task the scientific and technical societies of the country have to play a vital role in rendering valuable advice to the government of the country.

It is well recognised that Education plays a vital role in development of any society. Developed societies have the highest scientific and technological manpower and spend a larger part of their GNP on education. On the other hand, developing societies have to lay greater stress on the type of education appropriate to the development needs rather than blindly imitating the syllabii and type of courses in developed countries. To illustrate my point, I would cite the example of a country like Malaysia which has concentrated its efforts on teaching and research in the fields of rubber, tin and palm oil which are abundant in their country. Scientific and technological societies should therefore play a vital role in developing curricula, syllabii, reading material and equipment including teaching aids appropriate to their developmental needs. Indian National Science Academy has taken some interest in this direction but other academies have not yet made any significant contribution in this area. Senior academies and retired scientists, in particular, who were known as good teachers could be persuaded to undertake this task in the interest of the nation as the standards of science education especially at the school and undergraduate level have fallen to some extent.

One of major objectives of science societies all over the world is the popularisation of science among the masses. Pandit Nehru passionately advocated dissemination of information about scientific discoveries and the application of science and technology for the development and prosperity of the country and above all to inculcate the scientific temper among our people. Man is no longer a pawn in the hands of destiny as one would believe. If only every individual is given the rudiments of scientific method, logic, techniques and its applications for changing the way of life, we would be a different nation in a short span of time. There is, therefore, an urgent need for scientific societies in dispel unscientific attitudes, beliefs and superstitions and to impress upon the people that man is no longer a victim of the vagaries of nature but that he could control and channelise the mighty forces of nature for the welfare and progress of mankind. It is the responsibility of the scientific societies to make the public aware of the developments in science, particularly those which affect his life such as food and nutrition, hazards of pollution, perils of modern warfare, new and emerging technologies etc. through the media of popular science journals, radio and television so that they are aware of the rapid strides in science and technology. The strength of any country lies in enlightening the public opinion about the proper utilization of science and technology for development and in avoiding the dangers inherent in the misuse of knowledge for selfish ends.

The science academies and societies in the country should attempt this difficult task by undertaking a number of new activities such as science museums, science centres, science hobby clubs etc and also preparing books, monographs and journals and scientific toys. In this effort they should seek the support of international organisations like UNESCO. Mass media like radio and television and audiovisual material like films, video tapes etc. can be extensively utilised towards this laudable objective. In a country with such a multiplicity of languages, wide spread illiteracy, diversity of cultures, customs and traditions, the problem of communication is very formidable. In this task the local and state academies have been much more effective than national level academies.

Meeting in the state of Kerala, I cannot but recall the yeoman services rendered by Kerala Sastra Sahitya Parishad which is perhaps the largest of all state level societies, in taking science to the people. It is a mass-based society with a deep involvement of people and working with an extremely small budget. Among the state level academies, Andhra Pradesh Academy has also organised seminars, published popular science books and journals but it does not have the mass base and larger involvement of the people. Indian National Science Academy among the national academies has a special committee on popularisation of science and has organised many successful programmes. I wish and hope that our Academy will in due course take up programmes involving popularisation of science and taking science to the rural people.

The most important activity, in which scientific and technological societies all over the world are involved, is the dissemination of information through journals, newsletters, conferences etc. The prestige of a journal published by a society depends on the quality of the scientific papers contributed, the referring system and, most important of all, the international circulation of such a journal. In addition to exchanging scientific and technical knowledge amongst themselves, there is need for more and more interdisciplinary journals for interaction between different disciplines.

Apart from CSIR which is publishing a large number of journals, scientific and technological societies in our country publish a large number of prestigeous journals. Some of these journals like Pramana has attained international fame in a short span of five years. National Academy of Sciences has recently started the "Science letters" which has now gained fairly wide circulation.

One of the important tasks of any scientific and technological society is to have an annual conference which is an occasion for all the members to meet and discuss not only organisational matters of the society but also review talks and original scientific papers. Very often special symposia highlighting contemporary and emerging areas of research are organised to bring together experts in that area for gainful discussion. Major societies such as Indian National Science Academy which has the full backing and financial support of the Government, provide grants for organising national and international conferences.

Science academies have a responsibility to periodically review the state of Art in each subject or sub-discipline and focus the attention of the scientists in this area to the new and emerging trends, problems and tasks to be undertaken. An excellent set of such state of Arts reports were prepared by the National Academy of Sciences, USA utilising the expertise drawn from all over the world. It is the responsibility of major academies in our country to take active interest in this type of activity and to draw the attention of scientists, administrators and the public at large to problems not only of fundamental interest but also of development orientation so that grants from the funding agencies are judiciously allocated to such topics of national relevance.

Although there are a large number of national level scientific and engineering societies such as Indian National Science Academy, Indian Science Congress Association, Indian Academy of Sciences, National Academy of Sciences, Institution of Engineers (India), Institutions of Electronic and Telecommunication Engineering etc., there is a greater need for close collaboration between all these premier and prestigeous societies to work in a spirit of close cooperation and healthy rivalry for the all-round development and growth of science and technology in our country. Such close cooperation will yield results of unparalleled significance and as a body they can project their views to the public and advise the government on crucial questions of science and technology policy.

The most urgent task for the engineering societies in developing countries today is to take an active part in identifying research and development needs of the country and to impress upon the government the need for stepping up the efforts in providing the infrastructures and finances in this regard. They have to make an indepth analysis of the new technologies and give appropriate advice on the choice of these technologies. Very often the choice between two alternate technologies is not decided by their merits as by the influence which the influential business firms can exert. In the choice between any alternate technologies the Science & Engineering societies must make an objective and in-depth analysis of not only the existing technologies but also the emerging new technologies and give their advice to the government so that the trend of buying old and obsolete technologies could be arrested. There is a tendency among developing countries to buy old technologies because they are cheaper and readily available but we must caution the administrators and the politicians that such an unwise move will relegate our country perpetually to the back benches. To cite a few examples there should be no doubt in the minds of technologists and policy makers and planners about the choice of Colour TV versus black and white, Microchips versus integrated circuits, Electronic versus pneumatic controls, Magnetic discs versus video tapes etc. Perhaps in some areas we are far behind the developed countries in the modernisation of the technologies. In such a situation the wisest policy would be to leap-frog the intermediate stages to the latest technologies. Engineering societies in our country, which have certainly rich resources compared to the science societies, have to constitute active groups in certain identified emerging areas and, based on their recommendations, advise the government in the correct choice of technologies, institutions, manpower and the location. Very often these crucial factors are decided more on political or business interests than on scientific or technological compulsions. If the Engineering societies have to play a decisive role in this regard they should not only have the highest level of competence but also the rapport with the political system in order to gain their confidence.

There is another important role which technologists should play in a society which is largely a rural based society. It is well known that 75% of our population is in the rural areas. The benefits of the applications of science and technologies reach largely the urban societies and the rural people continue to live in poverty, insanitation and illiteracy. The engineering societies have to play a very crucial role in taking science and technology to the rural sector in order to bring about increasing economic returns, to lessen drudgery of work and above all to raise the living standards of the vast majority of the people who continue to live in abject poverty. Engineering societies should take up this most challenging problem of taking science and technology to this most crucial rural sector for development, if they wish to convince and visibly demonstrate how science can help to improve their living conditions.

If many of the developing countries have failed in their attempts to raise the living standards, it is attributed not only due to the lack of application of the science and technology but also due to the lack of efficient management. Management of many organisations tends to be bureaucratic and rule bound rather than creative, inventive, innovative and achievement oriented. Most of the managerial problems are centred round a long winding red tape and mistrust and based on the principle of centralised control of power. There is neither freedom and flexibility nor delegation of power and responsibility down the line. The failure of many of our crucial sectors of economy could be largely attributed to the weakness in our managerial system.

The future of any developing society depends critically on the preparedness of the society for absorbing, developing and improving the emerging technologies which are changing at a rapid rate. In this respect engineering societies have an important role to play by forming leading groups of thinkers, planners and technologists who can forecast the emerging future technologies which are likely to replace the existing ones. Futurology has now become an important factor in the planning process of most of the developed countries. If the developing societies are to keep pace with the advanced countries they should be very sensitive and alert to the future trends of new technologies in commerce, management, industry and most important of all in defence. It is only such societies which can survive the onslaught of the rapid advances in some of the technologies which the multinationals are developing and harnessing in order to exploit the less developed countries.

International cooperation is a well recognised activity of many national academies of science to foster the ideal of unity and universality of science. Through various global programmes and activities of international bodies like International Council of Scientific Unions (ICSU), the World Community of Scientist work in close cooperation particularly for exchanging information and knowledge on a global scale and participate in programmes of global importance like Atmospheric Research, Space Research, Environmental Studies, World Climate etc. where success is achieved only by the combined effort and cooperation among different nations of the world. ICSU and its various Unions and Commissions have organised programmes dealing with crucial issues like natural resources, energy, oceanography etc. The Committee on Science & Technology in Developing Countries (COSTED) which was established by ICSU in 1966 has as its primary objective to coordinate and to encourage efforts by the ICSU to assist developing countries. COSTED works in close cooperation with national and regional societies which could identify scientific and technical problems relating to development and provide the necessary advisory services and financial support. National academies should encourage young scientists to attend national and international conferences whether they are ICSU sponsored or otherwise. Infact, there are many prestigious international conferences which are not sponsored by ICSU. Encouragement to young scientists is very crucial in a developing society, in order to make them aware of the developmental problems, to expose them to modern trends in science and technology and to involve them in international collaboration. In this regard INSA and COSTED has recently entered into a collaborative agreement to sponsor about 20 young scientists every year from India to attend international conferences with major support coming from COSTED.

Societies and academies all over the world have joined hands to undertake under their joint auspices several successful programmes of cooperation such as organising seminars, conferences, symposia, exchanging information and undertaking joint research programmes with participation of two or more countries in areas of global importance where major facilities cannot be set up with financial resources of one country e.g. the gaint nuclear accelerator at CERN at Geneva. The Indian National Science Academy has successfully been implementing cooperative programmes of mutual interest with Royal Society in UK, Soviet Academy of Sciences in USSR and the Japanese Society for Promotion of Science.

Another crucial role which the major scientific societies particularly from the developed countries can play is in helping less developed countries to start scientific and engineering societies by providing necessary guidance and support. COSTED has recently helped the formation of an Asian Physical Society which is an organisation to bring under one umbrella all Physical Societies in all Asian countries. The Asian Physical Society established two years ago has already implemented several programmes such as organisation of symposia, workshops and training programmes in close collaboration with COSTED and UNESCO. It has among its many objectives, collaboration among developing countries in Asia by exchanging books and journals and making available major facilities in each country for advanced scientific research.

Pandit Nehru firmly believed that "it is science alone that can solve the problem of hunger and poverty, of insanitation and illiteracy, of superstition and deadening custom and tradition". If the political leadership and the administrators are convinced that this powerful tool of science and technology can be used for development of the country, it can do so by utilising science and technology not only in the sectors of economy but also in health, education, etc. In this task science and engineering societies should play a vital role by proposing/and examining, in detail, the various alternative strategies from which the decision makers can choose. They should also realise that they have a heavy responsibility to meet the demands and challenges at this crucial juncture and try to win the confidence of the Government by showing that scientists in this country are ever alert and sensitive to the changing needs of society and that they have not only the expertise but also the drive and dedication to help in planning, implementing, monitoring and forecasting in all major developmental activities.

In this respect all our premier societies have not been very effective. There were occasions when they were rudely awakened by major decisions of the government as it happened a couple of years ago when the most prestigious scientific society of the country voiced a feeble protest in a carefully worded press release. While continuing to have effective and close interaction with the government, they should maintain high standards of scientific integrity, autonomy, objectivity and fearlessness in their analysis and expression of their views on outstanding issues of national concern. Perhaps, for the scientific societies, it may appear to be a difficult task to maintain this delicate balance between the apparently (but not necessarily always) conflicting duties and functions and responsibilities. Scientific and technological societies in our country have seldom been called upon to play such a role in our country although some of them are involved in their individual capacity in preparing for the first time a separate science and technology plan in the current plan period.

In any discussion on the role of scientists and technologists in the development process, there is invariably a strong criticism on the lack of adequate funds for R&D, the inadequate attention given to scientists and technologists in the planning process and above all the lack of facilities for high level training in the field of education. It is indeed fortunate that at all levels in our government and various scientific ministries and agencies, there is an all out effort made to foster science and technology for the all-round development of the country.

In such a climate of challenging opportunities and enlightened support for science and technology, I hope that professional societies will play a more active role to involve themselves in the development problems of the nation, to encourage more and more young and talented scientists and engineers to solve R&D problems of national relevance, to interact with UN agencies and societies in developed countries to transfer newer and latest technologies and above all to commit all the intellectual resources at their command to lead to the country from the morass of hunger, poverty, illiteracy and insanitation to a brighter and prosperous future.

Looking at the growth and development in western societies, a few trends may be noticed. We notice how some of these societies have suffered from the multiple maladies of social insecurity, psychological imbalances, and lack of moral cultural and ethical moorings resulting in some of the individuals in these societies drifting aimlessly seeking solace and comfort in the mysticism and spiritual wealth of the East. By blind imitation of the western model in all activities of the society, many of the less developed countries run the risk of losing for ever their rich heritage of culture, religion, social customs and such other traditional values which have so far enriched their lives.

Any developing society should, therefore, aim at the total development of man and his personality. While we should not neglect the general physical well-being of every individual in the society it should be the constant endeavour of every nation to provide opportunities to enable every individual to identify and develop his physical and mental faculties to the fullest extent so that he may be an asset to the society which has nurtured him. Science academies should recognise and understand these new dimensions of man's inner needs which are far more important to give the mental peace and tranquility in order to enable him to live in harmony with the nature around him. Science has to take up this new challenge and integrate sciences with humanistic values, technology with social relevance and material progress with higher values of life. The social spiritual, aesthetic and ethical values are as important as the physical. In the word of Kenneth Bolding. "The challenge now is to incorporate into scientific thinking those values that would enable science to address itself to the problems of human development and survival" [*Text of the Presidential Address delivered at the National Academy of Sciences.*]

Mehra suggests reforms in educational system

Raja Ram Mohan Roy helped to raise India from the pit of religious superstition, social decay and national degradation into which it had sunk and he ushered in an age of scientific reasoning and progressive thinking through western literature and science.

This system of education "the colonial system of education" according to Swami Vivekanand, also, was instrumental in promoting to a point, scientific reasoning and progressive thinking. Swami Vivekanand described the system as predominantly "clerk making education." He pleaded passionately then, and it holds good even today, that the need of the hour and the country is for "man-making education"—an education which manifests the perfection that is already there in man (though dormant), an education which increases one's strength of mind and character, an education which expands intellect and enables one to stand on one's feet.

Tagore desired that the atmosphere of the entire world should vibrate through educational institutions and that it would help to foster a broad based personality and healthy national and international outlook in students. As opposed to Gandhiji who advocated "work experience and education" Tagore stressed beauty, love with truth and goodness—development of the aesthetic senses. If Tagore insisted on the presence of the whole world within the four walls of the institutions that he visualised, Shri Aurobindo emphasised the importance of the students' personality being opened up and shaped in the class room. He declared that spiritual education, national education and an integral education should be regarded as three stages of educational activity or even three phases which can be taken up simultaneously.

Shri Aurobindo saw education of an individual as a process of integration between his body, mind and spirit, between truth and between individual, society and the world, between science and spirituality. He in fact advocated the five-fold evolution, that of the physical, the vital, the mental, the psychic and the spiritual layers in man. Above all, Shri Aurobindo wanted the teacher to be an integrated personality. We have miles to travel to attain these ideals.

For long, India has remained backward under the shackles of slavery. Today we are a free country. In order to secure for its people social, economic and political justice, to give them an opportunity to participate in the democratic processes at all levels and to enable them to enjoy the fruits of freedom and liberty, we have to develop our resources, both human and physical and that too at an accelerated pace. While the development of physical resources is a means to an end, that of human resources is an end in itself; and without it, even the adequate development of physical resources is not possible. We have therefore to develop the human resources through a properly organised programme of education. In this task the Universities have a very important and constructive role to play. The acquisition of various kinds of information is no doubt necessary in the modern world but that is not the principal objective of education. Its main aim should be the development of the mind that makes for a balanced, well-adjusted person capable of meeting the changing challenges of life and functioning in harmony with the socio-cultural environment as it exists today and as it is going to change and grow in future. The ultimate in education is to produce "THE WHOLE MAN." This objective embraces the ethos of India's great philosopher sons Swami Vivekanand, Gurudev Tagore, Shri Aurobindo and Mahatma Gandhi.

In the last few decades our sense of values has become somewhat distorted. There have been serious erosions of social values resulting in inadequate respect for law, justice, fair-play and principles of good behaviour. The modern craze for science and technology has led to the utter neglect of the development of an integrated personality. Modernisation does not mean a refusal to recognise the importance of moral and spiritual values and self-discipline. On the other hand the expanding knowledge and the growing power it places at the disposal of the modern society must be combined with the strengthening and deepening of a sense of social responsibility and a keener appreciation of moral and spiritual values. The latter are the synthesis of our culture. It is a pity that we are forgetting the strength of our heritage and culture and adopting as opposed to adapting what is alien—the culture of the industrial rich which is out and out materialistic and fickle. The weakening of moral and social values in the younger generations is creating many serious social and ethical problems. It is therefore necessary to pay greater attention to the inculcation of right values in the students, at all stages of education. It is also necessary to give a value orientation to our education which will have a beneficial effect on the character of the rising generation.

If education is an effective instrument of social change then the benefits of education should reach those who are the most deprived. Social changes are influenced as much by the type of person who gets education as by the kind of education he gets. Higher education has in the past been the preserve of a privileged percentage of our people. It should therefore be our aim to spread education, as widely as possible especially among those who have been denied these opportunities for long—the weaker sections of the society. It has to be remembered that genius does not necessarily grow amongst the rich. It can germinate anywhere. However it will only thrive if adequate opportunities are provided to it to do so. The diamond is part of tons of rubble and rock. It assumes a value when it is sifted out of its habitat and cut and polished. We need to spot and nurture our diamonds from the mass of humanity. Our educational institutions are our factories for this task—factories with a difference as they always have to aim at excellence.

Education has rightly been described as an index of growth. In our context quantitative growth is desirable as we have miles to go to usher in an era of literacy amongst our people. However, the more important facet of growth is the qualitative one as it has a direct bearing on the country's development and advancement. The latter should be the cherished goal of our Universities.

There has been a phenomenal growth in the number of Universities and colleges in the last three decades. It has been estimated that by 1985-86 the total enrolment in colleges and Universities would be of the order of about 7 to 8 millions or more than twice the manpower needed for national development. This proliferation is not in our interest as, apart from being instrumental in diluting quality, it is helping the growth of frustration. Youth, it has to be remembered, is an age of aspirations and dreams and passionate urges of all kinds. For this very reason it is necessary that the young have to cultivate the depth of soul in the midst of tumult, a poise and balance in the midst of all restlessness and agitation.

The wide gap between the enrolment and the trained manpower needed by the country coupled with the national aspirations and expectations of the young is instrumental in their becoming frustrated in life. Instead of becoming agents of certain change for the better and contributors to national development they become agents of disruption and disorganisation and act as a drag on our national development. This is a dangerous situation which we must avoid at all costs as it will nullify all our efforts aimed at national development.

What is the answer? Restrict the expansion of higher education to the capacity of our economy to absorb the products of the educational system? This would be a retrogade step.

The answer may perhaps lie in moulding our children from their very young ages to desist from wrong or perverted emotions based on greed, anger, pride, jealousy and attachment. At a later stage in life our attempt should be to teach the young to desist from emotions based on carnal instincts and also to maintain balance in the midst of conflicting emotions. This may pave the way gradually for the establishment of the required norms A cultured student is one who will not rush to any extreme position under the stress of emotions. He will steer clear of impulsive protests and act in a cool and balanced manner.

A student has to cultivate five kinds of skills, practically all his life, for a balanced individual never ceases to be a student. The skills which the students should acquire in increasing complexity as they advance in years are :

(a) Self-help skills
(b) Subject skills
(c) Professional skills
(d) Group or social skills
(e) Ethical skills.

Good education inculcates in a student a spirit of freedom and fearlessness. It has as a necessary concomitant a spirit of self-discipline. It is one of the basic postulates of education that it should help to develop a disciplined mind, for without a disciplined mind one cannot have the ability to discriminate between good and bad. Discipline of the mind is an essential attribute of character and one of the principal aims of education is to build up character. Education must prepare students for the struggle for life which lies ahead. Inherent in this process is the building of character, love for truth and goodwill towards all. Good education should nurture values of social justice among the students and the determination to fight injustice in a democratic manner and not by taking to the streets.

One of the common criticisms against the development of education in recent years is that there has been a fall in standards especially in higher education. With quantitative expansion in education quality is bound to suffer. The deterioration in quality can be reversed if teachers and students give more serious attention to their respective tasks of teaching and learning. In the process of education the involvement of students is as important as the involvement of teachers. The students themselves are a factor in the quality of their own education. They must realise that the major objective of a student's life is the pursuit of his studies and therefore devote undivided attention to it. The teachers on their part should be inspired by a burning desire to pursue the path of learning and scholarship and keep abreast with the latest developments and advances in the subjects they teach. Unless they themselves are imbued with a sense of learning, dedication and missionary zeal they will neither be able to inspire the students nor bring out the best in them. I would therefore appeal to the teaching fraternity to dedicate themselves to the noble pursuit of learning and scholarship and to take to the task of teaching in a spirit of service and sacrifice. Then and then alone will they be able to earn respect and veneration from the students and succeed in raising the educational standards.

Higher enrolment and the rising cost of University education has a serious impact on the University finances and in turn on the quality of education. The gap between resources and the need is ever increasing. With the conflicting claims of primary and higher secondary education on the limited resources of the Government, it is quite understandable that the Government is not able to meet all the financial requirements of universities. With all this, the universities are increasingly becoming dependent on public finances. This is bound to place severe constraints on their autonomy and academic freedom which is not in the best interests of higher education. If they have to avoid this, the Universities should also raise funds on their own from commercial and industrial establishments and other beneficiaries of the end products of Universities. It would greatly help the mobilisation of funds if donations to Universities and colleges are exempted fully from income-tax.

I feel that Universities can and should undertake a number of community services through extension programmes. Our students must be guided to use their knowledge and skills to solve various problems being faced by the community around. They can devise methods for improving their functional efficiency and develop in them a rational attitude and, above all, creative urges in them. In this way the idealism, energy and dynamism of students could be effectively used for constructive purposes. Their exposure to real life problems will not only give them an insight into the raw realities of life but also teach them the dignity of labour and create in them the ability and self-confidence to solve problems on their own. The Universities with their abundant resources in manpower and knowledge can provide the right kind of leadership and lead the people from ignorance and poverty to the path of enlightenment and prosperity. A University exists primarily to serve the society. It fails in its purpose if it cannot influence, and in turn be influenced by the community around it.

Social and national integration are crucial for the creation of a strong, united country, which is an essential pre-requisite for all progress. One of the most pressing problems facing our country today is the need for development of a national outlook as against parochial, religious and linguistic considerations which very often colour and influence our thinking and actions. It is only through liberal education and example that we can cultivate in the younger generation progressive ideas and enlightened principles which are essential for the promotion of a broader national outlook. Unless we cultivate this outlook, unless each one of us works for the common good rising above narrow considerations of religion, region and language, we will never be able to achieve unity and the strength derived from unity or progress and prosper as a nation. Determined efforts in this direction are required to be made by institutions of higher learning so that we can hope to achieve progressively a socially cohesive, morally strong, politically awakened and economically viable nation.

Those of you who are fortunate enough to receive higher education should not forget the fact that there are millions and millions of our countrymen who are steeped in illiteracy, ignorance, superstition and poverty. They are part of the society to which you and I belong and their welfare should be your first charge. It is to be remembered that in spite of poverty, society has invested large sums of money on your education. Society, therefore, has a right to expect a return on this investment and it is your moral duty to repay this debt through dedicated service to the betterment of the needy, the poor, the sick and the deprived. In the ultimate analysis it is our feeling that we owe something to others that can truly sustain our sense of obligation to the less privileged. [*Excerpts from the convocation address delivered by Air Chief Marshal O.P. Mehra, Governor of Maharashtra at the University of Poona*].

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Campus News

Bipin Chandra bemoans shortage of intellectuals

Prof. Bipin Chandra of Jawaharlal Nehru University made a frontal attack at the deteriorating standard of education of universities. He said the colonial system was designed to produce unthinking people but the tragedy is that the education system in free India has produced even more unthinking people who are incapable of reading anything more taxing than a film magazine. While criticizing the anti-people educational system and the role of the Government, he said the educational system was anti-people not only because of the efforts of the Government but also because"all of us cooperate in this. The education system had been made extremely boring and irrelevant to the needs of our society.

Professor Bipan Chandra said that while we talked of university and academic autonomy, where were the teachers and the students who were doing anything useful with it? Where is the deep thinking going on about the basic issues facing us? He said that so far our universities had enjoyed some measure of autonomy precisely because there is no fearless and independent thinking in our universities and no ideas are being thrown up which may pose a challenge to the society and the system. Education should have two main purposes and it should produce citizens who are capable of thinking for themselves and capable of thinking fearlessly and independently on the political, cultural and social issues facing the country. In this, the education system had failed completely. The greatest shortage in the country was that of intellectuals. But a look at our universities shows us that the intellectuals have not even decided as to who the main enemy (of the system) is and they are not even agreed upon what kind of system should we have. He said that our society was so corrupt that as a result there were some good people fortunately left over for some poorly paid jobs like teaching. If society were to be absolutely fair and give the best paid jobs to the most competent, then the country would not be able to find teachers for its schools and colleges. The majority are lured away by IAS the banks, the private sector, the army and so on. He agreed that all along the encroachment by the Government in education has been increasing and that there is no doubt that even in a university like Delhi University the autonomy has been eroded. However, he felt that to some extert this is the result of agitations on the campuses, often in the name of radicalism. The Vice-Chancellors have had to run to Police Commissioners and Chief Ministers to control the law and order problems.

Kidwai opens institute of journalism

Dr A.R. Kidwai, Governor of Bihar, while inaugurating the Dr. Sachchidanand Sinha Institute of Journalism, Mass Media and Literary Science in Patna said that healthy journalism was very necessary for the success of our democratic system. The press had such an important role to play that its responsibilities had increased. He said now our journalists were given status in the society and received recognition from all quarters. It was the time for them to promote healthy journalism. Mr. Justice Nandlal Untwalia retired judge of the Supreme Court, addressing the inaugural function, said the profession of journalism had its own difficulties and problems. Journalists had to be master in all fields as they had to judge various activities in almost all walks of life. Mr R.N. Jha, Speaker of the Bihar Vidhan Sabha, said that more than 75 to 80 per cent of the press were owned by individuals or corporate sector which posed the biggest question of freedom of the press.

Bibliography on NE region being compiled

The Regional Information and Documentation Centre of the North Eastern Council is proposing to bring out a comprehensive bibliography on the different aspects of the north-eastern region. The bibliography which will be the first of its kind to be undertaken in this country will cover publications in all the languages spoken and prevalent in the north-eastern region and will relate to subjects like History, Geography, Socio-cultural background, Ethnological and Demographic features, Transport and Communication, Agriculture and Allied activities, Commerce, Industries and Banking, General administration and Political developments concerning the north eastern region.

The North Eastern Council has requested the publishers, printers and authors as well as different organisations to send the names of the individual together with the date of publication, edition, classification and the names of the printers and publishers.

Sick colleges to be made polytechnic

Mr. C. Aranganayagam, Tamil Nadu Education Minister, said in

Salem that those colleges which were sick and whose maladministration has resulted in frequent closures on filmsy grounds would be taken over by the State Government and converted into polytechnic institutions. There is no point in increasing sick colleges when polytechnics can do a better job. In some colleges a group of students always created trouble and demanded the colsure of the college so that they could resort to an agitation of some kind. There was an urgent need to curb such activities and with this in view the above proposal has been suggested. If the colleges are to function as good teaching institutions the students will have to be alert and they should neither demand closure nor connive with the teachers or management to engineer a closure.

Degree course in cooperation

The Haryana Government proposes to start diploma and degree courses in cooperation from next academic session. A separate institute will be set up in the State for this professional course. Mr Bir Singh, Cooperation Minister, said in Chandigarh that Haryana would be the first State to start a course in this subject. This was the need of the hour in the wake of the expanding cooperation movement in the country,. A meeting with the officers of the Education Department to work out the details would soon be arranged. Under the 10+2+3 system the diploma course would be introduced in the schools at the plus two level, the Minister said and added that specialization in business administration, accountancy and cooperation would be imparted to the students at the degree level. Mr Singh said that the diploma holders would be eligible to seek job in the Cooperation Department without undergoing the training course required at present. However, the training course would continue for the existing untrained staff of the Department.

World Sanskrit meet at BHU

About 200 scholars from a number of countries would be among 1200 delegates who will attend the fifth World Sanskrit Conference on the campus of the Banaras Hindu University. The conference is being sponsored by the Rashtriya Sanskrit Sansthan in collaboration with the International Sanskrit Association. The highlight of the meet is "Shastrarth', (an ancient Indian way of debate), with a number of scholars enlisted to participate. The 'Shastrarth' will cover many topics. Coinciding with the conference, the Banares Hindu University is holding a special convocation to honour a number of world known scholars.

Calcutta setsup Anthropology museum

A central museum of Anthropology organised by the Anthropological Survey of India was inaugurated in Calcutta. This raises the number of museums in the country to 382. About 2000 anthrographic specimens representing different cultures from various parts of the country have been housed at the museum These collections have been taken from remote tribal areas of Arunachal Pradesh, Orissa, Madhya Pradesh, Maharashtra, Kerala and the Andaman and Nicobar Islands. Besides some interesting specimens from Kafiristan now in Pakistan have also been accommodated in the museum.

Justice Safeer to probe into AMU affairs

Mr. Justice Preetam Safeer, retired judge of the Delhi High Court has been appointed to inquire into the charges against Prof. Irfan Habib, Dean of Social Sciences, Aligarh Muslim University, and Prof. Rehman Ali Khan. He will also inquire into the charges against Prof. Nabi Hadi, Mr. E.B. Hassan and Mr. Jameel Farooqi.

SV Varsity organises training programme

A six-week Subject Matter Refresher training programme was organised at S. V. University. The Directorate of Extension, Ministry of Agriculture, Government of India, sponsored the training programme and was conducted by the Department of Home Science. Nineteen officers from the four Southern States viz., Kerala, Karnataka,

Personal

1. **Dr. Dev Raj Bhumbla has been appointed Vice-Chancellor of Haryana Agricultural University.**
2. **Shri Krishna Kant Tiwari has been appointed Vice-Chancellor of Jiwaji University.**
3. **Prof. M.V. Rama Sarma, Vice-Chancellor of Sri Venkateswara University, has been honoured by the Milton Society of America as a Distinguished Miltonist and Honorary Member of the Society.**
4. **Dr. S.B. Chattopadhyay has been nominated as a Vice-Chancellor of the World University of Informal Higher Education.**
5. **Dr. Ram Dhari has been appointed Pro-Vice-Chancellor of Haryana Agricultural University.**
6. **Mr. Daulat Ram Thakur has taken over as the Pro-Vice-Chancellor of the Himachal Pradesh Krishi Vishwa Vidyalaya.**
7. **Dr. D.S. Kothari, an eminent educationist, has been awarded the 1981 Award of the National Federation of UNESCO Associations in India for his contribution to Unesco's objectives in the field of education and science.**
8. **Prof. M.G.K. Menon, Secretary Department of Science and Technology, has been re-elected President of the Indian National Science Academy for the year 1982.**

Tamil Nadu and Andhra Pradesh, received the training.

Prof. M.V. Rama Sarma, Vice-Chancellor, of the University inaugurated the training programme. Prof. G.N. Reddy, Principal, S.V.U. College of Arts & Sciences, presided over the function. Prof. Rama Sarma said that education for women should receive a priority in the national development programme. The emphasis of the training programme was on the child in the family, and related issues, such as nutrition, child care, communication, preservation and storage of food grains and foods etc.

Panjab's old teachers to be re-employed

The Syndicate of Panjab University at its meeting held in Chandigarh approved in principle a proposal to re-employ superannuated university teachers of all ranks up to the age of 63 years. The proposal will now be examined by a committee for drawing up guidelines.

A post of Professor in the Department of Geography with specialisation in the field of physical geography in the scale of Rs 1,500-2,500 was created. The recommendations of a committee appointed for considering ways and means to improve the financial position of teachers' holiday homes were approved. It was decided that deduction from the remuneration of the examiners be made at the rate of 4 per cent instead of 3 per cent, the university contributing an equal share. The university also declared teachers working in the schools recognised by the Education Department of Arunachal Pradesh to appear in the various university examinations as private candidates.

Computer centre for Patna Varsity proposed

A team consisting of four computer experts led by Dr Shankar Narayan, Additional Secretary, UGC visited Patna University recently to make an assessment for running and maintaining a computer by the university. The UGC has already agreed to provide a computer to the university but the details have to be finalised with the Vice-Chancellor. The university will have to bear all the cost of maintenance of the computer after four years. The team discussed the problem of workload and model and size of the computer. It asked the university to submit a list of prospective users of the computer such as private agencies, public enterprises, research institutes, government departments etc. The members of the team also held discussions with the Chancellor, Dr A.R. Kidwai. No other university in Bihar has a computer. The computer centre of Patna University would also serve other universities.

Development panels for Mithila colleges

Dr Shaligram Singh, Vice-Chancellor of L.N. Mithila University, said that development committees would be set up in all the constituent colleges of the university. He was inaugurating the 11th annual day celebrations of the Purnea Mahila College. He said that guidelines have been prepared to distinguish between viable and non-viable colleges. This year, 33 colleges have been upgraded into constituent units. About 36 colleges were taken over by the university earlier. He assured the students that financial hardships would not come in the way of development of the colleges.

Plea to amend Patna University Act

The Inter-University Board of Bihar has made a plea to the state government to amend the existing Act of Patna University to facilitate representation of a non-teaching employee on the senate. Dr R. Shukla, Chairman of the Board and the Vice-chancellors of Patna, Magadh and L.N. Mithila universities had prolonged discussions with officials of the Education Department.

The Board did not agree to a proposal of Patna University to allow employees reaching the age of superannuation to continue in service till the end of the academic session. The board directed the universities to pay conveyance allowance to the blind and handicapped employees at the rate of 20 percent of the pay. It also directed the universities to deposit 35 percent of the provident fund money in the seven-year national savings certificate or a post office time deposit scheme. It was decided to prepare a guideline for universities for introducing three-year degree course under 10 plus 2 plus 3 pattern of education.

UPSC chairman on study tour

Dr M.L. Shahare, Chairman, Union Public Service Commission, will undertake a threeweek tour of the European countries to study recruitment systems and civil services selection methods. The study tour will help him ex-

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plore new areas of recruitment methods and introduce changes in the present selection techniques, if necessary. Dr. Shahare will study particularly the recruitment methods of multilingual Switzerland and modernised selection models of France. He will also visit Britain, West Germany and the Netherlands.

The Commission has already conducted workshops recently in collaboration with British Council and also independently to impart knowledge of latest techniques of objective-type test construction to university teachers.

News from UGC

Hari Om awards for ten scientists

Ten scientists have been selected by the University Grants Commission for the Hari Om Ashram Trust awards for the years 1977 and 1978.

The awards named, after outstanding Indian scientists, carry a cash prize of 10,000 rupees each per year.

The Sir C.V. Raman award for experimental research in physical sciences has gone to Professor B.B. Srikantan, Tata Institute of Fundamental Research, Bombay, for the year 1977 and to Dr. V.G. Bhide of the National Physical Laboratory, New Delhi for 1978.

The winners of the Dr. Homi J. Bhabha awards for research in applied sciences are Dr. L.K. Doriaswamy of the National Chemical Laboratory, Poona, for 1977 and Professor E.C. Subba Rao of the Indian Institute of Technology, Kanpur for 1978.

For the Dr. Meghnad Saha award for research in theoretical sciences, Dr. M.K. Vainu Bappu of the Indian Institute of Astrophysics, Bangalore, has been selected for 1977 and Professor M.S. Narasimhan of the Tata Institute of Fundamental Research, Bombay, for 1978.

The Sir Jagdish Chander Bose award for research in Life Sciences is to be shared by two scientists for each of the two years. They are Professor V.S.R. Rao of the Indian Institute of Science, Bangalore, and Professor A.N. Radhakrishna of Hyderabad University for 1977. For 1978, the award will be shared by Dr. S Sriramachari, Institute of Pathology, Indian Council of Medical Research, New Delhi, and Professor L.K. Ramchandran, Osmania University, Hyderabad.

The awards are given by the Commission out of an endowment created by Hari Om Ashram Trust of Gujarat.

UGC guidelines for correspondence courses

The University Grants Commission wants the school or institute of correspondence courses in a university to be treated as an academic non-vacation department.

The Commission has approved new guidelines drawn up by its standing committee, to improve the functioning of correspondence courses.

Twenty-one universities and one institution deemed to be a university are at present offering correspondence courses which have a total enrolment of about two lakhs.

The guidelines lay down that at the undergraduate level. There should be a minimum core staff of one Associate Director and one Assistant Director for the main subject. At the post-graduate level, the minimum staff should comprise two Associate Directors and three Assistant Directors to take care of the optional papers as also the areas of specialisation. Student enrolment and workload should be among the basic considerations for determining the total strength of the staff.

The Commission has decided to increase the grant for correspondence courses at the undergraduate level from Rs 5 lakhs for a period of five years to Rs 1.5 lakhs per year for the same duration. At the post-graduate level, the grant is being increased from one lakh rupees per subject per year for a period of five years to one and a half lakh rupees per year.

The grants cover provision of staff, personal contact programmes, study centres, preparation of lessons and library facilities.

The guidelines already provide for streamlining and tightening of the procedure for dispatch of lessons to the students. They have suggested that the reading material should be kept under a certificate of posting and a record should be kept of the dates when the lessons are actually dispatched.

Under the guidelines, students can enrol themselves for a particular subject or subjects without taking a degree. They will be given certificates in such cases, on a successful completion of their studies.

UGC plan for computer manpower

The University Grants Commission has approved the starting of a two years' Master's degree programme in Computer Science and Technology at Roorkee University in Uttar Pradesh.

The approval is based on the recommendations of the UGC's Standing Committee on Development of Computer Facilities in the Universities.

Roorkee University has already got a computer centre and has been providing postgraduate diploma courses in computer science and engineering for the past seven years.

The approval of the post-graduate degree programme at Roorkee is part of a comprehensive UGC plan to make more computer manpower available for meeting the needs of the different sectors of the economy. It is the third new course in computer sciences to be cleared by the

Commission during the past one month. The two other universities concerned are Baroda and Osmania.

The Commission in cooperation with the Department of Electronics (DOE) has identified 19 universities and institutions deemed to be universities for either starting new computer programmes or extending the existing ones. The programmes consist of three levels—B.Tech., M.Tech. and M.C.A. (Master of Computer Application), besides short-term courses as part of continuing education schemes.

The introduction of the new programmes will be on a phased basis over four years upto 1984. The intake of these courses is likely to reach about 600 by that time, as indicated by the joint UGC-DOE panel. It is expected that the Department of Electronics will make a substantial contribution to the capital expenditure involved in the Manpower Training Programme.

There are already 30 universities having computer centres of their own, supported by UGC grants. The Commission plans to further develop computer facilities in universities in the Sixth Plant Period.

Medical Education

Panel to review medical education

Mr. B. Shankaranand, Union Health Minister announced the Government's decision to set up a medical education review committee headed by Dr. Shantilal J. Mehta, retired Director of Jaslok Hospital, Bombay, for the purpose of harmonizing the medical education system wholly with the overriding objective of health care, besides ensuring that the needs of the many prevail over those of a few. The committee will be asked to give its report within six months. It will review a whole gamut of issues relating to the system of education and will also evolve realistic projections of medical manpower requirements during the Sixth Plan and beyond

The committee will review in depth the current admission procedure (including entrance tests) and domiciliary restrictions for admissions to under-graduate and post-graduate courses; suggest measures aimed at bringing about overall improvement in under-graduate and post-graduate medical education; recommend the optimum duration of under-graduate and post-graduate courses of study; examine the existing Internship programme, review the working of the Residency Scheme along with the Housemanship programme; examine the current requirement of thesis or dissertation as an essential part of post-graduate medical education; and examine the feasibility of a period of service in the rural areas for medical graduates and post-graduates. With regard to the projections of medical manpower requirements, Mr Shankaranand mentioned that the Committee will take into consideration the needs of Government based health crare programmes, the requirement of doctors in the private sector, the needs arising from bilateral agreements, international commitments and Technical Cooperation among Developing countries; and the necessity to redress regional imbalances in the distribution of medical manpower.

Besides Dr Mehta, the other members of the committee are: Dr I.D. Bajaj, Director-General of Health Services, New Delhi; Prof. V.Ramalingaswamy, Director-General, Indian Council of Medical Research, New Delhi; Prof. H.D. Tandon, Director, All India Institute of Medical Sciences, New Delhi; Dr L.M.B. Joseph, Principal, Christian Medical College, Vellore; Dr M.M. Mehta, Member of Parliament; Dr O.P. Gupta, Director of Medical Education and Research, Gujarat; Dr Y.P. Rudrappa, Director of Medical Education and Research, Karnataka, Bangalore; Dr B.N. Sinha, President, Medical Council of India, Kotla Road, New Delhi; Dr Rameshwar Sharma, Principal, S.M.S. College, Jaipur; Dr P.N. Wahi, Executive Director, Indian Association for the Advancement of Medical Education, New Delhi; Dr P.N. Chhutani, Chandigarh; Col. R.D. Ayyar, former Director-General of Health Services, Madras; and Dr K.N. Uduppa, Principal, College of Medical Sciences, Varanasi. Mr N.N. Vohra, Joint Secretary, Ministry of Health and Family Welfare, will be the member-secretary of the committee.

Classified Advertisement

(*Continued from page 616*)

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Science & Technology

Nurul Hasan urges scientists to develop self-reliance

Professor S. Nurul Hasan, Vice-President of the Council of Scientific and Industrial Research (CSIR), called upon the scientists and engineers to develop the culture of self-reliance and raise their voice in favour of peace. Inaugurating the 51st session of the National Academy of Sciences, he said if the large scientific and technological manpower available in the country had to be galvanized into achieving the objective of self-reliance and acceleration of the pace of economic growth, then the academies and societies involved in science had to assume an even more active role. He said it was the duty of the society, including the state, to enable the scientists to develop the culture of self-reliance.

Turning to the objectives of scientific work, Prof Hasan said the Indian scientists should raise their voice for world peace and in favour of a new international economic order and dedicate their scientific efforts to eradicate poverty, to move rapidly in the direction of socialism, prevent degradation of our environment and promote the scientific outlook. He said the scientific community should bring their weight of moral authority in defence of the universities. The universities should not be allowed to become footballs in the political playing grounds.

Indo-German technical cooperation continues

The Government of the Federal Republic of Germany and the Government of India have agreed to continue promoting jointly the Indian Institute of Tecnnology (IIT) Madras, mainly in the field of common research. An agreement to this effect was signed between the two Governments with a view to contribute through joint research projects to the solution of problems of interest to both sides. Priority shall be given to selecting research projects capable of making a special contribution to India's economic and social development. The assistance shall cover the exchange of Indian and German scientists as well as the supply of scientific equipment and instruments. Up to now, in the framework of the Technical Cooperation agreement between India and the Federal Republic of Germany, an amount of more than Rupees 30 crores (DM 75 million) has been provided as outright grant by the Federal Government to promote the IIT Madras. With this new agreement the already closed and fruitful cooperation will continue.

News from Abroad

Indians to study in UK on Rhodes and Inlaks scholarships

A number of Indians are expected to begin studies in Britain under Rhodes and Inlaks Scholarships awarded to them for 1981-83. They include two students who have won Rhodes Scholarships tenable at Balliol College, Oxford University, and 11 others who will undertake postgraduate studies at different British universities. They are: Dr Vishwajit Lakshmikant Nimguonkar, MBBS, from the Christian Medical College, Vellore (South India), who will read for a D. Phil. in Neuropharmacology; and Miss Rukmini Mukherji, B.A. (Hons.) in Economics from the Delhi School of Economics, who will read for a degree in Politics, Philosophy and Economics. Rhodes Scholarships, founded by Cecil Rhodes with the aim of promoting the ideals of public service, have been awarded to students from India since 1946. Inlaks Scholarships, given by the Inlaks Foundation set up in 1976 by the late Mr Indu Shivdasani, are awarded every year to outstanding Indian students for postgraduate studies in Britain.

Five of the Inlaks Scholars will be studying at Oxford. They are: Miss Kalpana Kohli (Jawaharlal Nehru University, New Delhi); Mr Shailendra Mehta, (Delhi University); Mr Sunil Chander (Jawaharlal Nehru University, New Delhi); Mr Arvind Subramaniam (Indian Institute of Management, Ahmedabad); Miss Leena Banerji, (Delhi University); Three who will study at Cambridge are: Mr Ashok Srinivasan, (Madras University); Mr Indwar Kamtekar, (Jawaharlal Nehru University, New Delhi); Mr Arjun Mahey, (Delhi University); Three students who will study in London are: Mr Animesh Jha, (Indian Institute of Science, Bangalore); Mr Mahim Mehra, (Delhi University); and Mr N. Gopal Raj.

44 Indian students go to Tashkent Varsity

There are 44 Indian students on the rolls of the Tashkent University which commenced its current academic session this September. Of these 20 have been admitted in technical institutes, 13 in medical institutes, four in agricultural institutes, three in the Institute of Culture and the remaining four in other courses. Besides the Tashkent University, Indian students every year seek admissions in the Peoples' Friendship University at Moscow and in Leningrad University

Conferences, Seminars and Workshops

November-December 1981

Date	Title	Venue	Sponsoring Body
31 Oct—7 Nov 1981	Seventh Development Programme for Trade Union Leaders (National Programme)	New Delhi	Public Enterprises Centre for Continuing Education, Nos. 1 & 6, Community Centre, Basant Lok, Vasant Vihar, New Delhi 110 057
Oct/Nov 1981	Binder economy and alternate binders in road and building construction	New Delhi	Central Road Research P.O. CRRI Institute, New Delhi 110 020
November 1981	Environmental Physics and Atmosphere Boundary Layer	Pune	Indian Institute of Tropical Meteorology, Shivajinagar, Pune 411 005
November 1981	Seminar on Teaching & Research in Medical Sociology in India	Jodhpur	University of Jodhpur, Jodhpur
1—7 November	Sorghum in the 80s	Hyderabad	ICRISAT Patancheru P.O. 502 324 (A.P.)
1—14 Nov 1981	A Course on Biothermal Engineering	Bangalore	Indian Institute of Science, Bangalore
2—4 Nov 1981	Aflatoxins in Foods & Feeds	Hyderabad	Oil Technologists Association of India, C/o DCM Chemical Works P.O. Box 6219, New Delhi 110015
2—5 Nov 1981	36th National Conference on TB & Chest Diseases	Baroda	Tuberculosis Association of India, 3 Red Cross Road, New Delhi 110 001
2—5 Nov 1981	Normal & pathological development and structure of economic plants	Vallabh Vidyanagar	Sardar Patel University, Vallabh Vidyanagar, 388 120
2—5 Nov 1981	Scheduled Castes in India	New Delhi	Indian Social Institute
2—8 Nov 1981	Workshop on Educational Management for Secondary School Principals	Delhi	National Institute of Educational Planning and Administration
2—22 Nov 1981	Senior Management Programme	Madras	All India Management Association, 14, Institutional Area, Lodi Road, New Delhi 110 003
3—28 Nov 1981	Hospital Administration	New Delhi	N.I.H.
5—8 Nov 1981	47th annual meeting of Indian Academy of Science	Trivandrum	Indian Academy of Science P.B. 8005, Bangalore 560 080
6—7 Nov 1981	Conference on Industrial and Environmental Toxicology	Lucknow	Society of Toxicology, India Industrial Toxicology Research Centre, Lucknow
7—8 Nov 1981	Technology of Caustic chlorine production	Bombay	IIT—Bombay
9—13 Nov 1981	Non-residental refresher course on "Recent Advances in the Processing of Fatty Acids and Fatty acid—derivatives".	Bombay	Oil Technologists Association of India
9—14 Nov 1981	All India Seminar on Finite Element Methods in Biology	Ludhiana	Dept. of Mathematics & Statistics Punjab Agricultural Univ. Ludhiana 141 004
9—23 Nov 1981	Traffic Management	Pune	Central Institute of Road Transport, Pune 411 026
10—12 Nov 1981	Interphase between agriculture, nutrition and science	Hyderabad	ICRISAT
13—14 Nov 1981	Molecular sieves and their applications	New Delhi	Indian Institute of Chemical Engineers (N) C/o Dr R K Gupta, Manager—Projects DCM Chemical Works, New Delhi 110 015
14—15 Nov 1981	46th UP State Medical Conference	Dehradun	UP State Medical Association C/o Dr Bhim S Pandhi 10 Gandhi Road, Dehradun
14—15 Nov 1981	Centrifugal pumps, theory and operation	Bombay	IIT—Bombay
14—15 Nov 1981	Insurance and risk management	Bombay	I.A.M.M.
14—16 Nov 1981	Fourth Indian Geophytological Conference	Lucknow	Birbal Sahni Institute of Palaeobotany 53, University Road, Post Box No. 106, Lucknow 226 007 and Botany Department, University of Lucknow, Lucknow.
14—17 Nov 1981	II World Congress on Diabetes in the tropics and developing countries	Bombay	Diabetic Association of India Maneckji Wadia Building, 127 M.G. Road, Bombay 400 023
15—20 Nov 1981	International Workshop on Heliothis Management	Hyderabad	ICRISAT
16—19 Nov 1981	Plant engineering	Neemuch (M.P.)	CRI
16—19 Nov 1981	Work Redesign & Quality of Working Life	New Delhi	Public Enterprises Centre for Continuing Education Nos. 1 & 6 Community Centre, Basant Lok, Vasant Vihar, New Delhi 110 057

Date	Title	Venue	Sponsoring Body
16—21 Nov 1981	Materials Management in Hospitals	New Delhi	NIH
16—21 Nov 1981	Seminar on Reprography in Engineering	Bangalore	IIS—Bangalore
18—25 Nov 1981	Manpower and Employment planning at national and state levels	New Delhi	Institute of Applied Manpower Research, P. Estate (IAMR) New Delhi-110002
19—20 Nov 1981	Third National Seminar on Management of Foreign Technical Collaboration in India	Calcutta	All India Management Association, Management House, 14, Institutional Area, Lodi Road New Delhi-110 003 and Indian Investment Centre and Calcutta Management Association.
19—21 Nov 1981	5th Annual Conference of Marathi Arth-Shastra Parishad	Kolhapur	Marathi Arth-Shastra Parishad C/o Dr VB Ghuge, Head, Dept. of Economics, Shivaji University, Kolhapur 416 004
21—22 Nov 1981	Satellite Congress on Diabetes in the Young	Ootacamund	Diabetes Assoc. of India, Coimbatore Branch, Ootacamund.
21—23 Nov 1981	National Seminar on Glass Ceramics & Composites in Chemical and other Industries	Calcutta	Indian Institute of Chemical Engineers, Jadavpur Univ. Campus, Calcutta 700 032.
22—28 Nov 1981	International Conference on Physics of Semi-conductors Devices	New Delhi	IIT—Delhi
23 Nov 1981	Symposium on Tropical Immunology	Bombay	Indian Immunology Society, Cancer Research Institute, Tata Memorial Centre, Bombay.
23—27 Nov 1981	Chemical Plant Simulation	Delhi	Dept. of Chemical Engineering Indian Institute of Technology, New Delhi
23—28 Nov 1981	International Workshop on the Physics of Semiconductor Devices	New Delhi	Solid State Physics Laboratory Delhi 110 007
23—28 Nov 1981	IGU Symposium on Food Systems of the Developing World with special reference to India	Aligarh	Dept. of Geography, Aligarh Muslim Univ., Aligarh
24—26 Nov 1981	Environmental Physics and Atmospheric Boundary Layer.	Pune	Indian Institute of Tropical Meteorology, Ramdurg House, University Road, Pune 411 005
26—28 Nov 1981	Eleventh Rubber Conference	Bombay	Indian Rubber Manufacturers Research Association, Plot No. B/88, Road U Wagle Industrial Estate, Thane 400 604
27—28 Nov 1981	14th Annual Convention of Indian Society of Agricultural Chemists.	Junagadh	Gujarat Agricultural University, Ahmedabad
27—29 Nov 1981	Indo-Persian Literature in the Gujarat State.	Baroda	Maharaja Sayajirao University of Baroda, Baroda-2
28 Nov—7 Dec 1981	International Conference on Optimum Resource Utilisation through Imbo-Tero Technology & Maintenance Management	New Delhi	I.T.M.M.E.C. Indian Institute o Technology, New Delhi
29 Nov—4 Dec 1981	International Seminar/Workshop on Planning, Design & Construction of Load Bearing Brickwork Buildings for Developing Countries.	Roorkee	Central Building Research Inst., Roorkee
30 Nov—3 Dec 1981	International Seminar on Planning, Design & Construction of Load Bearing Brickwork Buildings for the Developing Countries.	New Delhi	Institution of Engineers, Bahadur Shah Zafar Marg, New Delhi-110 002
30 Nov—12 Dec 1981	International Conference on Theoretical Aspects of Computer Science	Bangalore	IIS—Bangalore
Nov—Dec 1981	Inter-disciplinary Seminar of Sub-Nationalism and National Integration	Aligarh	Dept. of Political Science, A.M.U.
December 1981	Concrete Technology	Vadodara	Gujarat Engineering Research Institute, Gujarat State, Race Course, Vadodara 7
December 1981	13th ATIRA Annual Technological Conference	Ahmedabad	Ahmedabad Textile Industry's Research Association, P.O. Polytechnic, Ahmedabad 380 015
December 1981	42nd Design of Indian History Conference	Bodh-Gaya	Magadh University, Bodh-Gaya 824 234
December 1981	Annual Conference of Indian Society for prehistoric and quaternary studies	Waltair	C/o Department of Anthropology Deccan College, Poona 4
December 1981	WHO Symposium on Meteorological Aspects of Tropical Droughts	New Delhi	Meteorological Dept, Lodi Estate New Delhi 110 003
December 1981	Workshop on Applications of Mass-baner Effect	New Delhi	Dept. of Physics & Astrophysics Delhi University, Delhi 110 007
December 1981	Application of Catastrophe theory in Earth Sciences	Roorkee	Dept. of Earth Sciences, Univ. of Roorkee, Roorkee 247 672

Date	Title	Venue	Sponsoring Body
December 1981	IASLIC Thirteenth All India Conference	Waltair	Indian Association of Special Libraries and Information Centres, P 291, C.I.T. Scheme No. 6M, Kankurgachi, Calcutta 700 054
December 1981	All India Islamic Studies Conference	New Delhi	Indian Institute of Islamic Studies Panchkuin Road, New Delhi 110 001
December 1981	Seminar on the famous Urdu poet and fighter of India's freedom, Maulana Hazrat Moham.	Aligarh	Dept. of Urdu, A.M.U.
December 1981	International Conference on System Theory & Application	Ludhiana	College of Agricultural Engineering, Punjab Agricultural Univ.
December 1981	Strategies of Pest Management	New Delhi	Entomological Society of India Division of Entomology, I.A.R.I., New Delhi 110 012
December 1981	Training Course on Carcinogenicity, Mutagenicity and Teratogenicity	Bombay	Cancer Research Institute, Tata Memorial Centre, Bombay
December 1981	All India Law Teachers' Conference	Aurangabad	Marathwada University
1—3 December 1981	Population Policy Prospectives in Developing Countries of ESCAP Region upto 2000	Bombay	International Institute for Population Studies, Govandi Station Road, Deonar, Bombay 400 088,
1—4 Dec 1981	International Symposium on Incidence of Infections & Chronic Diseases geographical perspectives	Madras	Dept. of Geography, Univ. of Madras, Madras
1—15 Dec 1981	Quality assurance and reliability	Kanpur	Indian Institute of Technology (IIT), Kanpur 208 016
1—15 Dec 1981	Offshore engineering	Kanpur	IIT—Kanpur
1—21 Dec 1981	Fundamentals of metallic corrosion and its prevention	Chandigarh	IIT—Kanpur
2—8 Dec 81	Manpower Utilization, development and productivity	New Delhi	IAMR
2—30 Dec 1981	Information storage & retrieval in health, population and family welfare	New Delhi	NIH
3—5 Dec 1981	International Conference on Flood Disasters	New Delhi	Indian National Science Academy Bahadur Shah Zafar Marg, New Delhi 110 002
3—5 Dec 1981	FAI National Seminar 1981 on Strategies for Achieving Fertiliser Consumption Targets and Improving Fertiliser Use Efficiency.	New Delhi	Fertiliser Association of India, Near J.N.U., New Delhi 110 067
3—7 Dec 1981	Symposium on Transportation Systems Studies	New Delhi	IIT—Delhi
4 Dec 1981	Dermography of the Disabled	Bombay	International Institute for Population Studies, Bombay
5—19 Dec 1981	Laser technology fundamentals/applications	Kanpur	IIT—Kanpur
5—19 Dec 1981	Vibration and noise control	Kanpur	IIT—Kanpur
6—10 Dec 1981	Plant cell culture in crop improvement	Calcutta	Bose Institute 93/1 Acharya Prufulla Chandra Road, Calcutta 700 009
6—19 Dec 1981	Planning and design of urban bus transit system	Kanpur	IIT—Kanpur
7—11 Dec 1981	Estuaries—their physics, chemistry, biology, geology and engineering aspects	Dona Paula	National Institute of Oceanography, Dona Paula, Goa 403 004
7—11 Dec 1981	Limit state design of prestressed concrete structures	Ballabgarh	CRI
7—19 Dec 1981	Development Administration	New Delhi	IIPA
7—19 Dec 1981	Training of trainers	New Delhi	IIPA
7—21 Dec 1981	Management Information System	Pune	Central Institute of Road Transport, Pune 411 026
9—12 Dec 1981	Protozoa	Aurangabad	Marathwada University
10—11 Dec 1981	Electrical Energy Conservation	Calcutta	NPC
11—12 Dec 1981	Futuristic aspects of electrochemical science and technology	Karaikudi	The Society for Advancement of Electro-Chemical Science and Technology, Karaikuda 623 006
11—13 Dec 1981	International Symposium on Water Resources Conservaton Pollution and Abatement	Roorkee	Civil Engineering Dept., Roorkee University, Roorkee 247 672
12 Dec 1981	Purchase planning & research and information services	Bombay	IAMM
12-24 Dec 1981	Stability and structures	Kanpur	IIT—Kanpur
2nd week of Dec 1981	V.U.P. Tuberculosis & Chest Diseases workers conference	Dehradun	UP Tuberculosis Association, IAP Sen Road, Lucknow
13—17 Dec 1981	Conference of Plasma Science Society	New Delhi	IIT—Delhi
14—16 Dec 1981	Emergence & Growth of Officers' Associations (National Seminar)	New Delhi	Public Enterprises Centre for Continuing Education
14—18 Dec 1981	International Conference on Condensed & the Human X Chromosome Chromation	Bangalore	Indian National Science Academy
14—19 Dec 1981	Operations policy & Management	Hyderabad	ASCI
14—19 Dec 1981	Symposium on Condensed Chromation and Human X-chromosomes	Bangalore	IIS—Bangalore

Date	Title	Venue	Sponsoring Body
14—19 Dec 1981	Top management seminar	Hyderabad	Administrative Staff College of India, Bella Vista, Hyderabad-500 475
14—26 Dec 1981	Workshop-cum-Course on Carcinogenicity, Mutagenicity and Teratogenicity	Bombay	Indian Association for Cancer Research, Cancer Research Institute, Parel, Bombay
15—17 Dec 1981	Terotechnology	Delhi	N.P.C.
16—19 Dec 1981	34th Annual Session of Indian Institute of Chemical Engineers.	Madras	IIT—Delhi
16—19 Dec 1981	Technology for 2000 A.D. 34th Annual Session, Madras	Madras	Indian Institute of Chemical Engineers, C/o Dept. of Chemical, Indian Institute Technology Madras
16—19 Dec 1981	Statistics: Applications and New Directions	Calcutta	Indian Statistical Institute, 203, Barrackpore Trunk Rd, Calcutta 700 035
17—18 Dec 1981	Third National Seminar on the Role of Nominee Directors on Corporate Boards	Calcutta	All India Management Association
17—19 Dec 1981	International Conference on Systems Theory & Applications	Ludhiana	Punjab Agricultural University
19—20 Dec 1981	Energy Conservation and Effluent Control in Oil based Industries	Calcutta	Oil Technologists Association of India
21—23 Dec 1981	National Seminar in Long-range Educational Planning	Delhi	National Institute of Educational Planning and Administration
21—25 Dec 1981	Symposium on Algebra and its Applications	New Delhi	IIT—Delhi
21 Dec 1981—10 Jan 1982	A Course on Wind Energy Systems	Bangalore	IIS—Bangalore
22 Dec 1981	Technological needs of small and medium scale manufacturers	Bombay	Electrical Research and Development Association, Brabourne Stadium, Bombay 400 020
23—25 Dec 1981	41st All-India Conference of Agricultural Economics	Dharwad	Karnataka University, Dharwad
24—26 Dec 1981	Seminar on Evaluation of Visual Arts	Bombay	Shreemati Nathibai Damodar Thackersey Women's University, 1, Nathibai Thackersey Road, Bombay 400 020
26—29 Dec 1981	All India Women's Conference: Annual Session	Jamshedpur	All India Women's Conference, 6 Bhagwan Dass Road, New Delhi 110 001
26—31 Dec 1981	Annual convention of Chemists	Madras	Indian Chemical Society, 92, Acharya Prafulla Chandra Road, Calcutta 700 009 and Council of Scientific Industrial Research, New Delhi, Dept. of Atomic Energy, Govt. of India, Bombay Institution of Chemists (India), Calcutta
28—29 Dec 1981	National Seminar on Electronics & Telecommunication Engineering Education	New Delhi	Institution of Engineers (India) New Delhi
28—30 Dec 1981	30th National Annual Conference of Anatomical Society of India	Trivandrum	Anatomical Society of India Dept. of Anatomy, Gandhi Medical College, Bhopal 462 001
28—30 Dec 1981	57th All India Medical Conference	Nagercoil Kanyakuman	Indian Medical Association I.P. Estate, New Delhi 110 002
28—30 Dec 1981	Technological forecasting	Hyderabad	A.S.C.I.
28 Dec 1981—2 Jan 1982	Regional Conference on Teaching of Quantum Mechanics including its Philosophical Implications	Delhi	Dept. of Physics, Delhi University, Delhi 110 007
29—30 Dec 1981	International Symposium on Microwaves and Communication	Kharagpur	Indian Institute of Technology Kharagpur 721 302
29—31 Dec 1981	32nd All India English Teachers Conference	Vallabh Vidyanagar	Sardar Patel University, Vallabh Vidyanagar 388120
Dec 1981/Jan 1982	35th Annual Congress of Radiology	Calcutta	Indian Radiological Association 10-B K. Gandhi Marg, New Delhi 110 001
30 Dec 1981—3 Jan 1982	Review of the Indian Planning Process	Calcutta	Indian Statistical Institute
31 Dec 1981—2 Jan 1982	Workshop on Computer Aided Design	New Delhi	Institution of Engineers (India) New Delhi
31 Dec 1981—Jan 1982	Workshop on Microprocessor Applications to Control & Instrumentation	New Delhi	Institution of Engineers (India) New Delhi
Dec 1981—Jan 1982	23rd Joint Technological Conference	Delhi	Ahmedabad Textile Industry's Research Association

Subject Index

Date	Title	Venue	Sponsoring Body
Agricultural Sciences			
1—7 Nov 1981	Sorghum in the 80s	Hyderabad	ICRISAT, Patancheru PO, AP 502324
10—12 Nov 1981	Interphases between agriculture, nutrition and food sciences	Hyderabad	ICRISAT
15—20 Nov 1981	International Workshop on Heliothis Management	Hyderabad	ICRISAT
27—28 Nov 1981	14th Annual Convention of Indian Society of Agricultural Chemists	Junagadh	Gujarat Agricultural University, Ahmedabad
Dec 1981	Strategies of Pest Management	New Delhi	Entomological Society of India, Division of Entomology, IARI New Delhi 110012
3—5 Dec 1981	FAI National Seminar 1981 on Strategies for Achieving Fertiliser Consumption Targets and Improving Fertiliser Use Efficiency	New Delhi	Fertiliser Association of India, Near JNU, New Delhi 110 067
6—10 Dec 1981	Plant Cell Culture in Crop Improvement	Calcutta	Bose Institute, 93/1, Acharya Profulla Chandra Road, Calcutta 700 009
Anthropology & Sociology			
Nov 1981	Seminar on Teaching & Research in Medical Sociology in India	Jodhpur	University of Jodhpur, Jodhpur
2—5 Nov 1981	Scheduled Castes in India	New Delhi	Indian Social Institute
Dec 1981	Annual Conference of Indian Society for prehistoric and quaternary Studies	Waltair	c/o Department of Anthropology Deccan College, Pune-4
26—29 Dec 1981	All India Women's Conference, Annual Session	Jamshedpur	All India Women's Conference 6 Bhagwan Das Road, New Delhi 110001
Arts			
24—26 Dec 1981	Seminar on Evaluation of Visual Arts	Bombay	Shreemati Nathibai Damodar Thackersey Women's University, 1 Nathibhai Thackersey Road, Bombay 400 020
Civil Engineering			
31 Oct—1 Nov 1981	Limit State design of reinforced concrete slabs	Bombay	IIT—Bombay
Oct/Nov 1981	Binder economy and alternate binders in road and building construction	New Delhi	Central Road Research Institute PO CRRI, New Delhi-110020
29 Nov—4 Dec 1981	International Seminar/Workshop on Planning, Design Construction of Load-Bearing Brickwork Building for Developing Countries	Roorkee	Central Building Research Institute, Roorkee
7—11 Dec 1981	Limit state design of prestressed concrete structures	Ballabgarh	CRI
12—24 Dec 1981	Stability and structures	Kanpur	IIT-Kanpur
Chemical Engineering			
13—14 Nov 1981	Molecular sieves and their applications	New Delhi	Indian Institute of Chemical Engineering (N) c/o Dr R K Gupta, Manager—Projects, DCM Chemical Works, New Delhi-110 015
21—23 Nov 1981	National Seminar on Glass Ceramics and Composites in Chemical and Other Industries	Calcutta	Indian Institute of Chemical Engineers, Jadavpur University Campus, Calcutta-32
23—27 Nov 1981	Chemical Plant Simulation	Delhi	Department of Chemical Engineering, Indian Institute of Technology, Delhi
1—21 Dec 1981	Fundamentals of metallic corrosion and its prevention	Chandigarh	IIT-Kanpur
11—12 Dec 1981	Futuristic aspects of electrochemical science and technology	Karaikudi	The Society for Advancement of Electro-Chemical Science and Technology, Karaikuda 623 006
16—19 Dec 1981	34th Annual Session of Indian Institute of Chemical Engineers	Madras	IIT-Delhi
16—19 Dec 1981	Technology for 2000 AD: 34th Annual Session, Madras	Madras	Indian Institute of Chemical Engineers, IIT Madras

Date	Title	Venue	Sponsoring Body
Computer Sciences			
30 Nov—12 Dec 1981	International Conference on Theoretical Aspects of Computer Science	Bangalore	IIS-Bangalore
31 Dec'81—2 Jan '82	Workshop on Microprocessor Applications to Control & Instrumentation	New Delhi	Institute of Engineers (India) New Delhi
Economics			
18—25 Nov 1981	Manpower and employment planning	New Delhi	IAMR
19—21 Nov 1981	5th Annual Conference of Marathi Arth-Shastra Parishad	Kolhapur	Marathi Arth-Shastra Parishad c/o Dr V B Ghuge, Head, Deptt of Economics, Shivaji University, Kolhapur 416 004
1—3 December 1981	Population Policy Prospectives in Developing Countries of ESCAP Region upto 2000	Bombay	International Institute for Population Studies, Govandi Station Road, Deonar, Bombay 400 088
2—8 December 1981	Manpower utilization, developments and productivity	New Delhi	IAMR
4 December 1981	Demography of the Disabled	Bombay	International Institute for Population Studies, Bombay
23—25 December '81	41st All-India Conference of Agricultural Economics	Dharwad	Karnataka University, Dharwad
30 Dec-'81-3 Jan '82	Review of the Indian Planning Process	Calcutta	Indian Statistical Institute
Education			
2—8 November 1981	Workshop on Educational Management for Secondary School Principals	Delhi	National Institute of Educational Planning and Administration
21—23 Dec 1981	National Seminar in Long- range Educational Planning	Delhi	National Institute of Educational Planning and Administration
Electrical and Electronics Engineering			
22—28 Nov 1981	International Conference on Physics of Semiconductors Devices	New Delhi	IIT-Delhi
10—11 Dec 1981	Electrical Energy Conservation	Calcutta	NPC
28—29 Dec 1981	National Seminar on Electronics & Telecommunication Engineering Education	New Delhi	Institution of Engineers (India), New Delhi
29—30 Dec 1981	International Symposium on Microwaves and Communication	Kharagpur	Indian Institute of Technology, Kharagpur 721 302
Financial Management			
14—15 Nov 1981	Insurance and Risk Management	Bombay	IAMM
Geology & Geography			
December 1981	WHO Symposium on Meteorological Aspect of Tropical Droughts	New Delhi	Meteorological Department, Lodi Estate, New Delhi-110003
December 1981	Application of Catastrophe Theory in Earth Sciences	Roorkee	Department of Earth Sciences, University of Roorkee-247 672
1—4 December 81	International Symposium on Incidence of Infections & Chronic Diseases Geographical Perspectives	Madras	Department of Geography, University of Madras, Madras
3—5 December 1981	International Conference on Flood Disasters	New Delhi	Indian National Science Academy Bahadur Shah Zafar Marg, New Delhi-2
23—28 Nov 1981	IGU Symposium on Food Systems of the Developing World with special reference to India	Aligarh	Department of Geography, Aligarh Muslim University, Aligarh
History			
December 1981	42nd Session of Indian History Congress	Bodh-Gaya	Magadh University, Bodh-Gaya 824234
Industry & Labour			
2nd wk of Dec 1981	UP Tuberculosis & Chest Diseases workers conferences	Dehradun	UP Tuberculosis Association, IAP Sen Road, Lucknow
Language & Literature			
27—29 November 1981	Indo-Persian Literature in the Gujarat State	Baroda	Maharaja Sayajirao University of Baroda, Baroda-2
December 1981	All-India Islamic Studies Conference	New Delhi	Indian Institute of Islamic Studies Panchkuin Road, New Delhi 110001

Date	Title	Venue	Sponsoring Body
December 1981	Seminar on the famous Urdu poet and fighter of India's freedom, Maulana Hasrat Mohani	Aligarh	Department of Urdu, AMU
29—31 December 1981	32nd All India English Teachers Conference	Vallabh Vidyanagar	Sardar Patel University, Vallabh Vidyanagar 388120
Law			
December 1981	All India Law teachers Conference	Aurangabad	Marathwada University
Library & Information Science			
December 1981	IASLIC Thirteenth All India Conference	Waltair	Indian Association of Special Libraries and Information Centres, Calcutta-54
2—30 December 1981	Information storage & retrieval in health, population and family welfare	New Delhi	NIH
Management			
14—19 December 1981	Manager Development	Delhi	National Productivity Council, Delhi
2—22 November 1981	Senior Management Programme	Madras	All Indian Management Association, Delhi
7—21 December 1981	Management Information System	Pune	Central Institute of Road Transport, Pune 411 026
14—19 December 1981	Operations Policy & Management	Hyderabad	ASCI
14—19 December 1981	Top Management Seminar	Hyderabad	Administrative Staff College of India, Bella Vista, Hyderabad 500 475
17—18 December 1981	Third National Seminar on the Role of Nominee Directors on Corporate Boards	Calcutta	All India Management Association, New Delhi-110003
Manufacturing Technology			
7—8 November 1981	Technology of Caustic Chlorine production	Bombay	IIT-Bombay
16—19 November 1981	Plant engineering in cement industry	Neemuch (MP)	CRI
26—28 November 1981	Eleventh Rubber Conference	Bombay	Indian Rubber Manufacturers Research Association, Plot No. B/88, Road U, Wagle Industrial, Thane 400 604
December 1981	Concrete Technology	Vadodana	Gujarat Engineering Research Instt., Race Course, Vadodara-7
December 1981	13th ATIRA Annual Technological Conference	Ahmedabad	Ahmedabad Textile Industry's Research Association, PO Polytechnic, Ahmedabad 380 015
22 December 1981	Technological needs of small and medium scale manufacturers	Bombay	Electrical Research & Development Association
Materials Management			
16—21 November 81	Materials Management in Hospitals	New Delhi	NIH
12 December 1981	Purchase Planning & Research and Information Services	Bombay	IAMM
Mechanical Engineering			
14—15 November 1981	Centrifugal pumps, theory and operation	Bombay	IIT-Bombay
1—14 November 1981	A Course on Biothermal Engineering	Bagalore	Indian Institute of Science, Bangalore
16—21 November 1981	Seminar on Reprography in Engineering	Bangalore	IIS-Bangalore
28 Nov—7 Dec 1981	International Conference on Optimum Resource Utilisation through Tribo-Tero Technology and Maintenance Management	New Delhi	ITMMEC, Indian Institute of Technology, New Delhi
5—19 December 1981	Vibration and noise control	Kanpur	IIT-Kanpur
21 Dec '81—10 Jan '82	A Course on Wind Energy Systems	Bangalore	IIS—Bangalore

Date	Title	Venue	Sponsoring Body
Medicine & Public Health			
2—5 November 1981	36th National Conference on TB & Chest Diseases	Baroda	Tuberculosis Association of India 3 Red Cross Road, New Delhi-1
3—28 Nov 1981	Hospital Administration	New Delhi	NIH
14—15 Nov 1981	46th UP State Medical Conference	Dehradun	UP State Medical Association c/o Dr Bhim & Pandhi, 10 Gandhi Road, Dehradun
14—17 November 1981	II World Congress on Diabetes in the tropics and developing countries	Bombay	Diabetic Association of India Maneckji Wodia Bldg, 127 MG Road, Bombay 400 023
21—22 November 1981	Satellite Congress on Diabetes in the Young	Ootacamund	Diabetes Association of India Coimbatore Branch, Ootacamund
23 November 1981	Symposium on Tropical Immunology	Bombay	Indian Immunology Society, Cancer Research Institute, Tata Memorial Centre, Bombay
December 1981	Training Course on Carcinogenicity Mutagenicity and Teratogenicity	Bombay	Cancer Research Institute, Tata Memorial Centre, Bombay
14—18 December 1981	International Conference on Condensed Chromatin of the Human X Chromosome	Bangalore	Indian National Science Academy
14—19 December 1981	Symposium on Condensed Chromatin and Human X-Chromosomes	Bangalore	IIS-Bangalore
14—26 December 1981	Workshop-cum-Course on Carcinogenicity, Mutagenicity and Teratogenicity	Bombay	Indian Association for Cancer Research, Cancer Research Institute, Parel, Bombay
28—30 December 1981	30th National Annual Conference of Anatomical Society of India	Trivandrum	Anatomical Society of India, Department of Anatomy, Gandhi Memorial College, Bhopal 462 001
28—30 December 1981	57th All India Medical Conference	Nagercoil Kanyakumari	Indian Medical Association, IP Estate New Delhi-2
Dec/Jan 1981	35th Annual Congress of Radiology	Calcutta	Indian Radiological Association 10 B.K. Gandhi Marg, New Delhi-1
Oceanography			
7—11 December 1981	Estuaries—their physics, chemistry, biology, geology and engineering aspects	Dona Paula	National Institute of Oceanography Dona Paula, Goa 403 004
1—15 December 1981	Offshore engineering	Kanpur	IIT—Kanpur
Personnel Management			
16—19 November 1981	Work Redesign & Quality of Working Life	New Delhi	Public Enterprises Centre for Continuing Education Nos 1 & 6, Community Centre, Basant Lok, Vasant Vihar, New Delhi-110057
Political Science			
November-December 1981	Inter-disciplinary Seminar of Sub-Nationalism and National Integration	Aligarh	Department of Political Science AMU
Production Management			
1—15 December 1981	Quality assurance and reliability	Kanpur	Indian Institute of Technology (IIT), Kanpur 208016
Public Administration			
7—19 December 1981	Development Administration	New Delhi	IIPA
7—19 December 1981	Training of trainers	New Delhi	IIPA
14—16 December 1981	Emergence & Growth of Officer's Associations (National Seminar)	New Delhi	Public Enterprises Centre for Continuing Education
Science & Technology			
10 Oct-7 Nov '81	Advance Level Institute in Botany (Algology) for College Teachers 1981-82	Varanasi	Department of Botany, BHU, Varanasi 221005

Date	Title	Venue	Sponsoring Body
2—4 November 1981	Aflatoxins in Foods & Feeds	Hyderabad	Oil Technologists Association of India c/o DCM Chemical Works, PO Box 6219, New Delhi 110015
2—5 Nov 1981	Normal & pathological development and structure of economic plants	Vallabh Vidyanagar	Sardar Pate University (SPU) Vallabh Vidyanagar 388120
5—8 Nov 1981	47th Annual Meeting of Indian Academy of Science	Trivandrum	Indian Academy of Science, PO Box 8005, Bangalore 560 080
6—7 Nov 1981	Conference on Industrial and Environmental Toxicology	Lucknow	Society of Toxicology, India Industrial Toxicology Research Centre, Lucknow
9—13 Nov 1981	Non-residential refresher course on "Recent Advances in the Processing of Fatty Acids and Fatty acid—derivatives"	Bombay	Oil Technologists Associations of India
9—14 Nov 1981	All India Seminar on Finite Element Methods in Biology	Ludhiana	Department of Mathematics & Statistics, Punjab Agricultural University, Ludhiana 141004
14—16 Nov 1981	Fourth Indian Geophytological Conference	Lucknow	Birbal Sahni Institute of Palaeobotany-53, University Road PO Box No. 106, Lucknow 226007 and Botany Department University of Lucknow, Lucknow
19—20 Nov 1981	Third National Seminar on Management of Foreign Technical Collaboration in India	Calcutta	All India Management Association, New Delhi 3
24—26 Nov 1981	Environmental Physics and Atmospheric Boundary Layer	Pune	Indian Institute of Tropical Meteorology, Ramdurg House, Univ Rd Pune 4 11 005
December 1981	Workshop on Applications of Mass-baner Effect	New Delhi	Department of Physics and Astrophysics Delhi University, Delhi-110007
December 1981	International Conference on Systems Theory & Application	Ludhiana	College of Agricultural Engineerring Punjab Agricultural University
5—19 Dec 1981	Laser technology fundamentals/applications	Kanpur	IIT—Kanpur
9—12 Dec 1981	Protoza	Aurangabad	Marathwada University
13—17 December 1981	Conference of Plasma Science Society	New Delhi	IIT-Delhi
15—17 December 1981	Terotechnology.	Delhi	NPC
16—19 December 1981	Statistics : Applications and New Directions	Calcutta	Indian Statistical Institute, 203 Barrackpore Trunk Road Calcutta 700 035
19—20 December 1981	Energy Conservation and Effluent Control in Oil based Industries	Calcutta	Oil Technologists Association of India
21—25 December 1981	Symposium on Algebra and its Applications	New Delhi	IIT—Delhi
26—31 December 1981	Annual Convention of Chemists	Madras	Indian Chemical Society, 92, Acharya Profulla Chandra Road, Calcutta-700 009
28—30 Dec 1981	Technological forecasting	Hyderabad	ASCI
28 Dec—2 Jan 1982	Regional Conference on Teaching of Quantum Mechanics including its philosophical implications	Delhi	Department of Physics, Delhi University, Delhi-110007
31 Dec 81—2 Jan 1982	Workshop on Computer Aided Design	New Delhi	Institution of Engineers (India) New Dehli
Dec'81—Jan '82	23rd Joint Technological Conference	Delhi	Ahmedabad Textile Industry's Research Association
Transportation			
9—23 Nev 1981	Traffic Management	Pune	Central Institute of Road Transport Pune 411 026
3—7 Dec 1981	Symposium of Transportation Systems Studies	New Delhi	IIT-Delhi
6—19 Dec 1981	Planning and design of urban bus transit system	Kanpur	IIT-Kanpur
Water Management			
11—13 Dec 1981	Internatonal Symposium on Water Resources Conservation Pollution and Abatement	Roorkee	Civil Engineering Department Roorkee University

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THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Dhammi, Ravi. Aggression: An experimental study. Bangalore University.

2. Mallappa, K.R. A comparative study of psychological parameters of depression. Karnatak University.

3. Mukhopadhyay, Indrani. An attempt to evaluate advertising effectiveness of radio: A auditory medium of communication in comparison to that of cinema slides, a visual medium of communication, in a given advertising situation, from a behavioural point of view. University of Calcutta.

4. Saun, G.S. Patterns of self-disclosure and adjustment among high and low achievers. Kumaun University.

5. Sharma, Nilima. Ego-ideals of adolescents in relation to motivational variables. Magadh University.

6. Subramoni, S. A comparative study of successful and non-successful supervisors in industry. University of Kerala.

7. Waikar, Shashikant. A study of socio-economic condition of Rikshaw Pullers in the city of Nagpur. Nagpur University.

Sociology

1. Bhadra, Ranjit Kumar. The changing social stratification in rural Assam. Jawaharlal Nehru University.

2. Laldas, Dhirender Kumar. The dynamics of industrial relations in textile industries of Indore. University of Indore.

3. Malsawma, H.L. Sociology of the Mizo society. Gauhati University.

Anthropology

1. Mallik, Ratna. Death as viewed in society among the castes. University of Calcutta.

Political Science

1. Asthana, Puspa. Political parties and political development in Orissa. Jawaharlal Nehru University.

2. Baghi, Gulshan Rai. Formation of Haryana: A study of the origin, development and culmination of the idea. Maharshi Dayanand University.

3. Bhattacharjee, Shyama Prasad. Grants-in-aid in India: A study of their over-all impact on inter-governmental balance of power within the Indian federal system. North Bengal University.

4. Chakraborty, Manas. Supreme Court in the Indian political system: A study of judicial behaviour and judicial decision making 1967-1976. North Bengal University.

5. Chaturvedi, Daulat Ram. Bharatiya samvidhan mein samvedhanik sanshodhnon ka adhyayan. Vikram University.

6. Rai, Shesha Nath. The working of the non-aligned diplomacy in the Nehru's era. Magadh University.

7. Sah, B.L. The role of village panchayats in integrated rural development in Kumaun Division. Kumaun University.

8. Shakti Lal. Indian attitude to the struggle for Bangladesh, 1965-1971. Panjab University.

9. Wongdharma, Donglaw. Relation of Thailand with neighbouring countries (Burma, Laos, Cambodia and Malaysia) from 1940 to the present day. Magadh University.

Economics

1. Bahadar Singh. Problems of innovations in small scale and cottage industries of J&K state. University of Jammu.

2. Bhatt, G.K. Economics of higher education in Rajasthan. University of Rajasthan.

3. Jain, Prasan Kumar. Industrial relations in some selected public sector undertakings in M.P. Vikram University.

4. Jha, Tej Narayan. Employment in rural economy: A case study of a developed and less developed district of North Bihar. Jawaharlal Nehru University.

5. Menaria, R.K. Degree of progression in Indian tax structure. University of Rajasthan.

6. Roy, Dashrath. A socio-economic study of the conditions of workers in Arthur Butler and Co. Ltd., Muzaffarpur. University of Bihar.

7. Saxena, Jagdish Narain. The role of land development banks in the agricultural development of Bhopal Division in M P. Vikram University.

8. Shamkunwar, M.R. Scheduled castes in Vidarbha: A socio-economic survey. Nagpur University.

9. Singh, Nagendra Prasad. A study of Defence Budgets in India with special reference to period 1962-72. Magadh University.

10. Tripathi, Beena. Fertility pattern in Kumaun: A demographic study. Kumaun University.

Law

1. Srivastava, Sureshchandra. Community regulation of instruments of economic coercion in labour management relations in India. University of Calcutta.

Education

1. Awasthi, Jai Narain. Administrative problems of principals of affiliated colleges of Avadh University. Avadh University.

2. Khajuria, Dev Prakash. The typical patterns of class room verbal behaviour exhibited by the successful teachers of language and science at the secondary levels. University of Jammu.

3. Kudchedkar, Shirin. Development of a course in spoken English at college level and the study of its effectiveness. S.N.D.T. Women's University.

4. Pandey, Sheo Mohan. A critical study of supervision practices with special reference to the B.Ed. departments of the Avadh University, Faizabad. Avadh University.

Commerce

1. Fofaria, Mahendrakumar Vasanji. Saurashtra shaherona laghu udyogonu sanchalan. Sardar Patel University.

2. Lakshmanna, Painane. Industrial entrepreneurship in Andhra Pradesh. University of Saugar.

3. Narendra Kaur. Changing role of banks in India. University of Rajashan.

4. Rangarajan, Rajendrem Sundararajan. Tamilnadu Industrial Investment Corporation: A micro study. University of Saugar.

5. Shendye, Yashwant Bhalchandra. Bharatiya Unit Trust karya padhati evam uplabdhiyon ka mulyankan, 1964-65 se 1978-79. University of Saugar.

HUMANITIES

Philosophy

1. Narayanshastri, Rajeshkhar. Critical study of recent Neo-Behaviouristic analysis of certain key concepts in psychology. Nagpur University.

2. Singh, Arun Kumar. The concept of value in Sartre. University of Gorakhpur.

3. Suresh Prasad. Dhatukatha kee darshanik samiksha. Magadh University.

Linguistics

1. Jha, Satish Chandra. Katyayanvartikmaskritya Sanskritasya bhashashas-triyamadhyaynam. University of Bihar.

2. Pandey, Brahmachari Braj Mohan. Sanskrit vyakaran kee pravidhik shabdawali ka shastriya vivechan, *D.Litt* Magadh University.

3. Pandey, V.D. Paniniya vyakarni laghawarath prayukto paye vanu krityadhikaryo mimamsa. Kumaun University.

4. Sukumaran Nair, B. Acquisition of mother tongue in different social groups: Malayalam. University of Kerala.

Literature

English

1. Deo, S.S. A study of dramatic presentation of philosophical themes in the plays of T.S. Eliot. Kumaun University.

2. Joshi, S.D. A critical sthdy of George Bernard Shaw's plays, as projections of a spirit in revolt. Kumaun University.

3. Prasad, Kumar Ratneshwar. A critical assessment of the letters of D.H. Lawrence. Magadh University.

4. Prasad, Shyam Sundar. The absurd in Tennessee Williames with special reference to his plays. Magadh University.

5. Vinoda. The moral vision in Saul Bellow's novels. Kakatiya University.

Sanskrit

1. Joshi, Kamlesh. Sanskrit muktak kavya parampara ko Shri Bhatt Mathuranath Shastri ka yogdan. University of Rajasthan.

2. Leelamani, K. Vasudeva's Yudhisthiravijaya: A critical study. University of Kerala.

3. Ramesh Chandra, Mahakavi Jaichander Suri krit Hammir mahakavya ka samikshatmak adhyayan. Kumaun University.

Hindi

1. Bansal, Saroj. Hindi natakon ke nari patron ka manovishleshnatmak adhyayan, 1915-1975. Panjab University.

2. Bhatnagar, Sita. Hindi kavita mein mrityu: Swaroop aur darshan. University of Rajasthan.

3. Billoray, Ramesh Chander. Swachandatavadi kavya dhara (Angrezi Hindi) ka tulnatmak adhyayan: Pant evam Nirala ke vishesh sandharbh mein. Vikram University.

4. Chaturvedi, Bade Lal. Tulsi kavya mein arth gambhirya ke vividh paksha. Avadh University.

5. Guglani, Raj Kumari. Prem Chand ke upanyason ka samajshastriya adhyayan. Maharshi Dayanand University.

6. Hardyal, Mohanlal. Mauritius mein Hindi aur uska sahitya. Vikram University.

7. Hatwar K. Nagesh. Madhya kaleen Krishna bhakti per Madhya sampradya ka prabhav. Bangalore University.

8. Joshi, D.D. Swatantrottar kavya ke chhand shilp ka adhyayan. Kumaun University.

9. Kamlesh Kumari. Nai kavita mein rasanubhuti kee samasya ka adhyayan. University of Rajasthan.

10. Narula, Veena. Prannath ke sahitya ka adhyayan: Madhaya kaleen Hindi bhakti kavya ke sandarbh mein. Panjab University.

11. Pandey, Surya Nath. Nai kavita mein manav mulya. University of Gorakhpur.

12. Sharma, Jagdish Chandra. Swatantryotar Hindi kavita mein virodh. Panjab University.

13. Sharma, Mithilesh. Ghananand ke kavya mein bhavna bhed evam saundarya bhed. Vikram University.

14. Sharma, Mulk Raj. Amrit Lal Nagar ke upanyason ka samaj-shastriya adhyayan. Maharshi Dayanand University.

15. Sharma, Shami. Sur aur Tulsi ke jeewan drishti ka tulnatmak adhyayan. Panjab University.

16. Singh, Kamla. Adikaleen Hindi ka prashasti kavya. Avadh University.

17. Tiwari, Harsh Kumar. Awadhi lok geeton ka sanskritik adhyayan. Avadh University.

Urdu

1. Abbdali. Abu Obaida. Mashrani-Maheri: Editing of his diwan and its revaluation. Magadh University.

2. Sabir, Zeyauddin Mohammed. Mosaddas-e-Hali and its impact on national and pan-Islamic Urdu poetry. Magadh University.

Bengali

1. Chattopadhyay, Narayan. Rabindranather mamatachinhita kayekti Bangla sahitya patrika (1284 BS-1342 BS). University of Calcutta.

2. Goswami, Prabhatkumar. Satabdi aitihasik natak. *D.Litt*. University of Calcutta.

Oriya

1. Satpathy, Natabar. Odia Purana. Sambalpur University.

Marathi

1. Mangala Athalekar Vasudeo. Shri P.B. Bhave: Kathakar Kadambrikar va natakkar. Shivaji University.

2. Page, Vitthal M. Adhunik Marathi kavyateel goorgunjan Keshavsut ti Mardhekar. Nagpur University.

Telugu

1. Venkatappaiah, Velaga. Evaluation of children's literature in Telugu and the development of children's libraries in the state. Andhra University.

Geography

1. Datta, Subhas Chandra. Kinnaur: A study in human ecology. University of Calcutta.

2. Fanase Vijya. Transportation geography of North Western Madhya Pradesh. University of Indore.

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1. Bedi, Pritpal Singh. The Mughal nobility under Akbar. Panjab University.

2. Chawla, Madan Singh. Kota rajya ka prashasan. University of Rajasthan.

3. Chopdar, Devanand. Medieval Orissan polity from 736 A.D. to 1110 A.D. Sambalpur University.

4. Harbans Singh. Administrative and constitutional development in erstwhile Gwalior State, 1886-1947. University of Indore.

5. Sahay, Akhauri Sudha Rani. A study of Indian immigrants in East Africa, 1960-1973. Magadh University.

6. Sarkar, Haribishnu. An architectural survey of temples of Kerala. *D.Litt*. University of Calcutta.

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Volpe, Richard. "Knowledge from theory and practice". *Oxford Review of Education* 7(1); 1981: 41-51.

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Heath, Anthony and Clifford, Peter. "Measurement and explanation of school differences". *Oxford Review of Education* 7(1); 1981: 33-40.

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Sehgal, Krishna. "Systems analysis: Its application to teacher education". *Quest in Education* 18(3); July 81: 197-204.

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Manzoor Ahmed. "World Bank assistance in education". *Prospects* 11(1); 1981: 25-35.

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Narendra Prasad. "Economics of education". *Indian Education* 11(6); Sept 81: 33-5.

Shelat, Neela and Jena, Shribatsa. "Pricing of higher education". *New Frontiers in Education* 11(3); July-Sept 81: 73-9.

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Perraton, Hilary. "A theory for distance education". *Prospects* 11(1); 1981: 13-24.

Sewart, David. "Distance teaching: A contradiction in terms". *Teaching At a Distance* (19); Summer 81: 8-18.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

Goel, S.C. "Issues and options in higher education in India". *New Frontiers in Education* 11(3); July-Sept 81: 26-32.

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GURU NANAK DEV UNIVERSITY
AMRITSAR
Advertisement No. 7/81

APPLICATIONS are invited for the following posts on prescribed form obtainable (free of cost) from the office of the Registrar, by making writtem request accompanied by self-addressed stamped envelope of 23 x 10 cms. no as to reach this office by **20-10-1981** alongwith crossed Indian Postal Order(s) for Rs. 7.50 for posts of Professors, Readers, Lecturers, Research Associates and Research Fellows and Rs. 5/- for other posts (non-refundable) drawn in favour of Registrar, Guru Nanak Dev University, Amritsar.

Persons already in employment must send their applications through their employers. Candidates from within India may not be considered in absentia. Higher start in the grade may be given depending on qualifications and experience.

GENERAL QUALIFICATIONS

(except for the posts in the School of Planning)

Professor : (Grade Rs. 1500-60-1800-100-2000-125/2-2500)

An eminent scholar with published work of high quality, actively engaged in research; Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level. OR An outstanding scholar with established reputation who has made significant contribution to knowledge.

Readers : (Grade Rs. 1200-50-1300-60-1900)

Good academic record with a doctoral degree or equivalent published work; Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials, about five years' experience of teaching and/or research including at least three years as Lecturer or in an equivalent position (may be relaxed in the case of candidates with outstanding research work).

Lecturers : (Grade Rs. 700-40-1100-50-1600)

(a) A doctoral degree or research work of an equally high standard;

(b) Consistently good academic record, that is, first or high second class (B in the seven point scale) at the master's level; and either an average of 55% marks of the two examinations prior to Master's degree or 50% marks in each of the two examinations separately.

The following relaxations may be allowed :—

i) In the case of candidates who have obtained more than 55% marks at the M.A./M.Sc. level and who also possess Ph.D., the criteria of consistently good academic record may not apply.

ii) In the case of candidates who have obtained between 50 and 55% marks in the M.A./M.Sc. examination and also possess Ph.D. or M.Phil., the requirement of 50% marks may apply only to one of the three lower examinations.

iii) In the case of the candidates who have obtained first class M.A./M.Sc., the requirement of 50% marks may apply to any one of the three lower examinations.

Note : Required specialisations for teaching posts and qualifications for other posts are indicated against each post.

1. Department of Business and Commerce

Professor 1 : Special qualifications Doctor of Business Administration/Ph.D.

Specialisations : Financial and Management Accounting/Production and Materials Management/Marketing Management.

Readers 2 : Special qualifications Doctor of Business Administration/Ph.D.

Specialisations : Financial and Management Accounting/Production and Material Management/Personnel Management/Quantitative Techniques and Operations Research.

Lecturer 1 : Special qualifications Doctor of Business Administration/Ph.D. or M.B.A.

Specialisations: Advanced Accounting and Auditing/Financial and Management Accounting/Production and Materials Management/Quantitative Techniques and Operations Research/Personnel Management/Marketing Management.

2. Department of Chemistry (for Job Oriented Courses) temporary : Reader/Project Officer : Teaching and R & D experience in : Instrumental Methods of Analysis; Textile Chemistry; Organic Chemistry of Dyes; Oils, Soaps and Detergents.

Lecturers

(i) Paints & Varnishes 2; M.Sc. Technology in Paints Technology/M.Sc. in Chimical Engineering or Chemical Technology with specialisation in Paints Technology.

(ii) Dyes & Dyeing Technology 2; M.Sc. Technology in Textile Chemistry or Textile Technology/M.Sc. Dyes and Intermediates/M.Sc. Chemical Technology or Chemical Engineering with specialisation in Dyes.

(iii) Instrumental Analysis 1; Electroanalytical/Spectroscopic, Chromatographic and other modern methods of Analysis.

3. Reader in the Department of Physics : Experimental Solid State Physics.

4. Lecturer in French (Part-time) : General Qualifications. (Rs. 600/- p.m. fixed).

5. Guru Ram Dass Post-Graduate School of Planning

Professor : Essential : (i) Bachelor's degree/equivalent professional qualifications of a recognised University/Institution in related disciplines of Architecture/Civil Engineering; of Master's degree or equivalent post-graduate qualifications of a recognised University/Institution in related disciplines of Geography/Social Science/Law etc. : (ii) Master's degree/equivalent Post-graduate Professional qualification of a recognised University/Institution in Town and Country Planning (iii) Independent professional/Published work of high standard; and (iv) At least 10 years' experience in Professional/teaching research work in a faculty/responsible position in Town and Country Planning, with abilities to conduct and guide research and/or undertake design/development work.

Desirable :(i) Memebrship of the professional institute of Town Planning : and (ii) Specialisation/research experience in certain areas/subjects in Town & Country Planning.

Reader : (i) B.Arch./B.E. (Civil) or an equivalent degree; (ii) Post-graduate degree/Diploma in Town & Country Planning/Landscape architecture; (iii) About 5 years experience of Teaching/research/Profession (may be relaxed in the case of candidates with outstanding research).

Lecturer :—Essential : First Class Bachelor's degree/equivalent Professional qualification of a recognised University/Institution in related disciplines or Architecture/Civil Engineering OR First Class Master's degree/equivalent post-graduate qualifications of a recognised University/Institution in related disciplines of Geography/Social Science/Law etc; (ii) First Class Master's degree/equivalent post-graduate professional qualification of a recognised University/Institution in Town & Country Planning; and (iii) At least 2 years experience in professional/teaching/research work in Town and Country Planning; preferably with aptitude to conduct and guide research and/or undertake design/development work.

Desirable : (i) Membership of the professional Institute of Town Planners; and (ii) Specialisation/research experience in certain areas/subjects in Town and Country Planning.

6. Research Associates in Biology Department—2 (Rs. 800/- p.m. fixed) First or High Second Class Master's degree in Biological Science, at least three years' research experience. Candidates specialised in any branch of Modern Biology will be preferred.

7. Research Fellows in (i) Mathematics-1 and Guru Nanak Studies-3; First or High Second Class Master degree with good academic record. Aptitude for research (Rs. 600/- p.m. fixed).

(i) Guru Nanak Studies Department

(a) Philosophy and Religion : M.A. in Philosophy/Religious Studies/Comparative Religion with sound knowledge of Gurbani.

Desirable :- Diploma in Guru Granth Studies.

(b) **History and Biographies** : M.A. in Medieval History/Sociology/Social Anthropology. The candidate should have ability to read Punjabi and Devnagri scripts.

(c) **Literature and Language** : M.A. in Punjabi/Hindi/Sanskrit/Linguistics.

Desirable : Diploma in Guru Granth Studies and ability to read manuscripts.

Technician "C" (2) for University Service and Instrumentation Centre : (Grade Rs. 380-12-500/15-560) (U.G.C.)

For one post : Diploma in Electrical Engineering with two years' experience OR Certificate Course in Electrical Engineering from ITI with five years experience of running a liquid nitrogen plant.

For other post : Diploma in Optical Workshop practice with two years' experience OR Certificate Course in Fabrication of optical components with five years experience in optical workshop.

9. Senior Scale Stenographers (English) (Grade Rs. 570-15-660-20-700/25-850/30-1000-40-1080 plus Rs. 40/- as special pay) (i) Graduate or Second Class Intermediate/B.A. Part-I or First Class Matriculate (ii) 100 w.p.m. speed in shorthand to be transcribed at the speed of 20 w.p.m. with 95% accuracy. (iii) Five years experience as Junior Scale Stenographer/Steno-typist in University/Govt./Semi Govt. Department, out of which one years must be as Jr. Scale Stenographer; (iv) knowledge of Punjabi up to Matric standard.

10. Junior Scale Stenographers (English) (Grade Rs. 510-15-600/20-700/25-800-30-880 plus Rs. 30/- as special pay) (i) Graduate or Second Class Intermediate/B.A. Part-I or First Class Matriculate; (ii) 100 w.p.m. speed in shorthand to be transcribed at the speed of 20 w.p.m. with 92% accuracy. (iii) At least one year experience as steno-typist in University/Govt./Semi Govt. Department; (iv) Knowledge of Punjabi up to Matric standard.

11. Steno typists (English/Punjabi) (Grade Rs. 400-10-450/15-525/15-600 plus Rs. 25/- as special pay) (i) Graduate or Second Class Intermediate/B.A. Part-I or First Class Matriculate of a recognised University or its equivalent (ii) 80 w.p.m. speed in shorthand to be transcribed at the speed of 15 w.p.m. with 92% accuracy; (iii) Knowledge of Punjabi up to Matric standard.

12. Clerks (Grade Rs. 400-10-450/15-525/15-600) (i) Graduate or Second Class Intermediate/B.A. Part-I or First Class Matriculate of a recognised University or its equivalent (ii) At least 40 w.p.m. speed in Punjabi/English typewriting; (iii) Knowledge of Punjabi up to Matric standard.

Jagjit Singh Khanna
REGISTRAR

ANNAMALAI UNIVERSITY
ANNAMALAINAGAR

Applications are invited for the following posts for the State Bank Chair in Rural Development in the form obtainable on payment of **Rs. 5/-** to the Registrar, Annamalai University, Annamalainagar-608 002 by Cash/Money Order/Postal Order (not refundable). Completed application forms (with five copies) should reach the Registrar *on or before 10-11-1981.*

Sl. No.	Name of the Post	No. of post
1.	**Professor-cum-Director** for Inter-disciplinary Studies in Rural development.	1
2.	Research Associate.	1

QUALIFICATION

1. Professor-cum-Director

Essential : M.A. Degree in Economics with First Class or at least B+with 55% marks.

OR

M A. Degree in Rural Development with First Class.

OR

Post-Graduate qualifications in Agricultural Economics with First Class.

Desirable : Ph.D. Degree in Economics or Agricultural Economics with specialisation in Rural Development or Rural Planning.

Persons of eminance or high attainments in the related fields of rural development will be preferred and qualifications may be relaxed in their case.

2. Research Associate

Essential : M.A. with First Class or atleast B+ with 55% marks in Economics or Rural Development or Agricultural Economics.

Desirable : Ph.D. degree in Economics or Rural Development.

(Continued on page 601)

TRAVEL GRANTS

The U.S. Educational Foundation in India, "Fulbright House", 12 Hailey Road, New Delhi-110001 invites applications no later than **November 15, 1981**, for a limited number of Travel-Only Grants to the United States from Indian scholars who have research or teaching assignments in the U.S. for 1981-82. Only those with programs for a minimum period of **three months** will be considered.

Candidates must :

1. have a Ph.D. degree or equivalent published work
2. be preferably under 50 years of age at the time of application
3. be Indian citizens and be present in India at the time of application
4. be proficient in English
5. be in good health
6. not have been in the U.S. during the last four years to teach or do research
7. be accepted by a recognised U.S. university or research institution for post-doctoral research and/or as a visiting lecturer and must have assurance of dollar finance to cover their expenses in the U.S. for the duration of the assignment. The letter of acceptance must show the nature, and duration of the assignment, and must be accompanied by evidence of dollar support, at the rate of not less than $ 6,000 and not more than $ 20,000 per academic year. The evidence of dollar support could be in the form of a grant or followship offered by American universities or research institutions or by Indian universities or research institutions.

The grant will provide round-trip economy class air travel, by the most direct route, from the candidate's ordinary place of residence or his academic institution to his U.S. institution and back. Excursion fare tickets valid for 120 days will be provided for those with programs of less than four months duration in the U.S. Travel will be arranged by the Foundation, and grantees must travel on U.S. visas issued against the IAP-66 provided by the Foundation and must conform to rules and regulations of the U.S. Government applicable to all exchange-visitor visa holders.

For application forms and further details contact the Director, U.S.E.F.I., "Fulbright House" 12, Hailey Road, New Delhi-110 001 before **November 15, 1981**.

KAKATIYA UNIVERSITY

WARANGAL-506009

No. 1499/A2/1981 **Date : 21-10-1981**

ADVERTISEMENT

Applications are invited in the prescribed form for the following posts in the Kakatiya University service so as to reach the undersigned on or before **30-11-1981**.

Sl. No.	Department	No. of vacancies			
				Lecturers	
		Professors	Readers	Permanent	Temporary
1.	English	1	—	1	1
2.	Economics	1	2	—	—
3.	Commerce	1	2	—	2
4.	Botany	1	—	1	—
5.	Zoology	—	1	—	—
6.	Pharmacy	—	1	—	1
7.	Political Science	—	—	—	1
8.	Hindi	—	—	—	1
9.	Telugu	—	—	—	1
10.	Sociology	—	—	—	1
11.	Law	—	—	—	1

For the post of 'Reader in Pharmacy' specialisation required is—"Pharmaceutical Medicinl-Chemistry" with two years of service in teaching and guiding research of the specialisation.

All the above posts are thrown open for Open Competition. However, the posts of Lecturers are reserved for the candidates belonging to the Scheduled Caste, Scheduled Tribe and Backward Class (Groups—A&C). The posts reserved for Backward Class, Groups A&C are however inter-changeable for Backward Class, Groups B & D. If the candidates are not available from among these categories, the candidates applying under Open Competition will be considered.

Prescribed application forms can be obtained from the Office of the Registrar, Kakatiya University, Vidyaranyapuri, Warangal-506009 in person or by post sending a duly stamped self-addressed envelope on payment of **Rs. 10/-** either by a challan payable at the Kakatiya University Branch of State Bank of Hyderabad or by a crossed Indian Postal Order in favour of the Registrar (Accounts), Kakatiya University, Warangal payable at Vidyaranyapuri Post Office.

Qualifications prescribed for various teaching posts and other details will be furnished alongwith the application form.

Dr. A. Narsing Rao
REGISTRAR

TAMIL UNIVERSITY

THANJAVUR

Advertisement

Applications in the prescribed form in quadruplicate are invited for the following posts in this University. Last date of receipt of application is **21-11-81** before close of Office.

A. DETAILS OF POSTS

(1) PROFESSORS (16) (SIXTEEN)

1. Professor of Sculpture (1)
2. Professor of Painting (1)
3. Professor of Music (1)
4. Professor of Drama (1)
5. Professor for Editing Palm leaf Manuscripts (1)
6. Professor for Editing Paper Manuscripts (1)
7. Professor of Epigraphy (1)
8. Professor for the study of Tamils in Foreign countries (1)
9. Professor of Translation including automatic translation (1)
10. Professor of Compilation (1)
11. Professor of Literature (1)
12. Professor of Linguistics (1)
13. Professor of Siddha Medicine (1)
14. Professor of Ancient Sciences (1)
15. Professor of Ancient Industries (1)
16. Professor of Architecture (1)

(Scale of Pay : Rs.1500-60-1800-100-2000-125/2-2500 p.m.)

(2) ASSOCIATE PROFESSORS/ READERS (32) (THIRTY TWO)

1. Associate Professor of History and Comparison of Sculpture (1)
2. Associate Professor of Survey, Preservation and Documentation of Sculpture (1)
3. Associate Professor of History and Comparison of Paintings (1)
4. Associate Professor of Survey, Preservation and Documentation of Paintings (1)
5. Associate Professor of History and Comparison of Musical Arts (1)
6. Associate Professor of Survey, Preservation and Documentation of Musical Instruments (1)
7. Associate Professor of History and Comparison of Dramatic Arts (1)
8. Associate Professor of Survey, Preservation and Documentation of Dramatic Arts (1)
9. Associate Professor of Survey and Documentation of Manuscripts (Palm leaf) (1)
10. Associate Professor for Editorial work of Tamil classics (Palm leaf) (1)
11. Associate Professor for Editorial work of Tamil classics (Paper Manuscripts) (1)
12. Associate Professor of Survey and Documentation of rare Tamil works (1)
13. Associate Professor of Survey, Documentation and Interpretation of Tamil Epigraphy (1)
14. Associate Professor of Survey, Documentation and interpretation of records other than Epigraphs (1)
15. Associate Professor for Teaching Tamil to Foreigners (1)
16. Associate Professor of History, Migration and Culture of Tamils in Foreign Countries (1)
17. Associate Professor of translation of Tamil classics into English, French and other languages (1)
18. Associate Professor of translation of classics in English, French and other languages into Tamil (1)
19. Associate Professor of Compilation of Science Encyclopaedia (1)
20. Associate Professor of Compilation of Humanities and Social Science Encyclopaedias (1)
21. Associate Professor of Literary Criticism (1)
22. Associate Professor of modern literature and folk lore (1)
23. Associate Professor of Dialectology (1)
24. Associate Professor of Grammatical theories (2)
25. Associate Professor of History and Comparison of Siddha Medicine (1)
26. Associate Professor of Survey, Preservation and Edition of Siddha Manuscripts (1)
27. Associate Professor of History and Comparison of Ancient Sciences (1)
28. Associate Professor of Survey, Documentation and Interpretation of Ancient Sciences (1)
29. Associate Professor of History and Comparison of Ancient Industries (1)
30. Associate Professor of Survey and Documentation of Ancient Industries (1)
31. Associate Professor of History and Comparison of Architecture (1)
32. Associate Professor of Survey, Documentation and Interpretation of Architectural Monuments (1)

B. QUALIFICATIONS PRESCRIBED FOR THE POST OF PROFESSOR

Essential

(a) Professional eminence with a Doctorate Degree in the appropriate field; published work of a high quality and active involvement in and organisation of Research.

(b) Either a minimum total experience of 5 years in the capacity of Associate Professor (Reader) of ten years of Research experience.

C. **Age** : Between 35 and 50 years.

D. **Desirable**

(a) Publications in Journals of repute.

(b) Participation in Conferences, Symposia, Seminars by presentation of papers.

(c) Active involvement in inter-disciplinary research pertaining to Tamil Nadu and South India.

(d) The basic degree for the posts of Professor/Associate Professor in Literature should be M.A. in Tamil with a First Class. For other posts a thorough knowledge of Tamil will be a necessary qualification.

E. ESSENTIAL QUALIFICATION FOR ASSOCIATE PROFESSORS

(a) Consistently high academic record with Ph.D. with proven merit in research through publications: and

(b) Research experience of 5 years in the appropriate area in a Post Graduate Institution.

F. Age : Between 30 and 45 years.

G. Desirable

(a) Publications in Journals of repute, National or International.

(b) Participation by way of presenting papers and Conferences, Seminars and Symposiums.

(c) Membership of Professional bodies of repute, National or International relating to the field of specialisation.

H. General

(1) The appointees to the posts will be on probation for a period of two years.

(2) In the event of not being considered for the post applied for the application can be considered for the next lower post if so desired by the applicant.

(3) If required, applicants should be prepared to come for an interview at Thanjavur at their own cost.

(4) The University reserves the right to relax the essential or desirable qualifications prescribed for any post if the candidate is otherwise well qualified. If suitable candidates are not available, the University reserves the right to invite distinguished researchers in the field for the posts advertised.

(5) The application should be addressed to THE REGISTRAR, TAMIL UNIVERSITY, THANJAVUR-613001, TAMIL NADU, INDIA and should be superscribed on the left hand top corner of the envelope as "Application for the Post of ....and sent by Registered Post with Acknowledgment Due".

(6) In addition to the Pay indicated, the posts carry usual allowances admissible as per the rules in force.

(7) The University reserves the right to call or not to call any applicant for an interview.

(8) Candidates must also furnish crossed Indian Postal Order to the value of **Rs. 10/- (Rupees Ten only) (Rs. 2.50** for Scheduled Caste and Scheduled Tribe candidates) towards cost of the application blanks, drawn in favour of the Registrar, Tamil University, Thanjavur-613001 and payable at Thanjavur.

(9) The cost of the application blanks will not be refunded under any circumstances.

(10) In the case of candidates applying from countries other than India, to avoid Postal delay, the Bio-data of candidates, with copies of publications and a fee of Three U.S. Dollars sent per International Mony Order to reach the Registrar before the last date indicated above will be acceptable.

S. Ramachandran
REGISTRAR

ALIGARH MUSLIM UNIVERSITY
ALIGARH
Advertisement No. 10/81-82

Applications on the prescribed form are invited for the following posts :

1. **Reader in Nephrology (Plan Post) Medicine Department, Scale Rs. 1200-50-1300-60-1900 plus allowances.**

Qualifications

D.M. (Nephrology)
M.D./M.R.C.P.* in Medicine with two years special training in Nephrology.
Should have teaching experience as Lecturer in Nephrology for at least three years in a Medical College.
(*Medical qualifications obtained in U.K. should have been obtained on or before 11.11.78).

Desirable : Published Research work in the speciality.

2. **Lecturer in Neuropsychiatry, Medicine Department, Scale Rs. 700-40-1100-50-1600 plus allowances.**

Qualifications

M.D. (Psychiatry), M.D. (Psychological Medicine) speciality Board of Psychiatry and Neurology (USA) M.D./M.R.C.P. in Medicine with Diploma in Psychological Medicine.
The requisite recognised postgraduate qualification in the subject and three years teaching experience as Tutor/Registrar/Resident in Psychiatry or Medical Officer Incharge of a Psychiatric Clinic/Mental Hospital, of which one year should be after postgraduate qualification.

"Candidates must possess a Medical Qualification included in the first or second schedule of Part II of the third schedule (other than licentiate qualifications) of the Indian Medical Council Act, 1956. Holders of educational qualifications included in Part II of the third schedule should fulfil the conditions stipulated in Section 13(3) of the Indian Medical Council Act, 1956. Must possess a Basic University or equivalent qualification entered in Schedules under State/Central Registration Act."

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single Second Class Railway fare only.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) either personally or by sending a self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is the **30th November, 1981**. Incomplete applications and those received late may not be considered.

Mahmood Ali
REGISTRAR

MARATHWADA UNIVERSITY
Advertisement No. Estt/Dept/17
Date : 19th October, 1981

Applications are invited for the following posts in the University Departments so as to reach the undersigned on or before **November 26, 1981.**

1.	Professor in Chemistry	Two	Rs. 1500-60-1800-100-2000-125/2-2500.
2.	Reader in Public Administration	One	Rs. 1200-50-1300-60-1900
3.	Reader in Economics	One	-do-
4.	Reader in Physics	Two	-do-
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B.M. Patodekar
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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH NOVEMBER 15, 1981

PM at JNU

Prime Minister, Smt. Indira Gandhi, presenting the Scroll of Honour to Prof. Angadipuram Appadorai, the founder Director of the School of International Studies of JNU. Also seen in the picture are Dr. D.S. Kothari (left), Chancellor of the University and Dr. K.P. Mishra (right), Dean of the School.

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UNIVERSITY NEWS

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Editor : ANJNI KUMAR

Teacher Training by Post

J.S. Rajput*

Correspondence education programmes have been launched in a big way by several universities and institutions. Obviously it is the felt need of the present day developments in the field of education. On the one hand, there is the need of the individual for extending his knowledge through unconventional ways on the other such philosophies of education as that of 'deformalisation', 'de-schooling' and 'de-institutionalisation' are being increasingly propagated. The new institutions, programmes and systems of learning like 'Open University', 'University without walls', 'Open Classrooms', 'Self-prescribed Instruction', 'Personalised System of Instruction', or 'Programmed Learning have' been launched in an impressive manner all over the world. Correspondence education is a part of forum of this new emerging field of not-so-formal education.

To begin with the correspondence education materials were prepared by the experts in their respective areas depending upon their visualisation of the needs of the concerned clientele. Various centres are now in a position to reflect upon the experience gained through the interaction of experts and the trainees. In teacher education most of the programmes envisage correspondence through assignments and return of response sheets followed by contact sessions.

The experiences are gained thus in two ways during the period of correspondence and during the contact programmes. It may also be of interest to note that while certain programmes lead to the award of degrees and diplomas, others may just be planned and organised with a view to enriching the professional competence of the teachers without any visible gain in terms of degree, diploma or some other incentives. Several helpful points emerge based upon the experiences gained through the correspondence and contact programmes which may be useful in enriching further programmes. Here we shall confine ourselves to inservice programmes only meant for serving teachers.

A high degree of pre-course motivational effort is necessary. The programme should not appear to have been forced. Adequate visualisation of initial inertia is necessary.

The incentive aspect though theoretically discarded by many has its own place and all possibilities and feasibilities in this regard ought to be explored first. One way to provide incentive to the participating teachers will be to declare them eligible for appearing in the higher professional examinations after they have attended some courses.

The Principals/Headmasters have to be oriented to be appreciating the importance of the programme and being helpful.

The language and style of the material prepared is very significant. A thorough initial orientation of experts is a must. This may be followed by a workshop where the prepared material is discussed by others including some from the probable target group and modifications introduced. Subsequent renewals, of course, would follow.

The response sheets ought to take into account the psychology of the trainees and should be designed to produce minimum strain but could extract the maximum in terms of the objectives of the programme.

(*Continued on page 638*)

**Principal, Regional College of Education, Bhopal.*

A Note on Minority Institutions

Amrik Singh*

When after 1947 the new Constitution was being hammered out, a provision was made which entitled minorities, linguistic as well as religious, to establish and manage institutions of their own choice. This particular provision of the Constitution has been used on quite a few occasions. Most of the expansion that has taken place in recent decades has been in the governmental sector. At the same time some of the minorities have established institutions and there has been no problem in regard to their legal right to do so.

In the late fifties when a Communist Government came to be formed in Kerala, it attempted to pass a law qualifying the right of the minorities to establish and manage their institutions. The attempt was not to negate the right; the attempt was to regulate the right. The motivating factor behind this move was more or less political in character. No wonder therefore that the law could not be placed on the Statute Book and the Centre intervened to reject the proposal.

Apart from this Kerala attempt, there have been a number of other cases where attempts have been made either to question this right or to qualify it. As to the attempt to question the right, the Constitution is so clear that unless this particular provision is amended, there are no chances of any legal attempt succeeding. As far as one can judge, no political party, either today or in the foreseeable future, is likely to adopt the posture of whittling down the rights of the minorities. For one thing, no political party would like to estrange itself from a sizeable section of the public. For another, there are strong reasons why the minorities should continue to exercise this right. In plain words, there is a good case of the minorities being able to establish and manage institutions of their choice. Any attempt to amend the relevant provision in the Indian Constitution would therefore neither be understood nor countenanced.

In this situation the question to ask is: Has this right been exercised wisely and judiciously? If the answer is in the positive there is nothing more to be said about it. If the answer is not exactly in the positive (and that is my own personal opinion), it is important to discuss the next question. Can something be done to ensure that this right is exercised wisely and judiciously? Even though most well informed persons are of the view that without taking away the right of the minorities to establish and manage their institutions something ought to be done to regulate the right, no formal proposals have yet been made, nor indeed has the issue been discussed seriously and responsibly. Maybe the explanation is that there is not enough urgency for such an attempt to be made. This is at best a partial explanation however. In quite a few places problems have arisen and this has led to bickerings as well as bitterness. It is important therefore to place this issue in the right perspective and find a rational as well as a just solution to it before the problem blows up in our face. A few thoughts are presented below so as to at least get a debate going in this regard:

(a) As at present, the minorities should continue to have an unfettered right to establish educational and cultural institutions. That these institutions should be entitled to State support, as any other institution follows as a matter of course.

(b) To manage these institutions also is more or less a corollary of the earlier proposition that the minorities have a right to establish their own institutions. But, as has been argued on numberless occasions, the right to manage should not include the right to mis-manage. In other words, if an institution is not being managed properly, the State should have as much right to intervene as it has in regard to other privately managed institutions. The fact that it was established by a particular minority should not be advanced as an alibi to cover its mismanagement.

(c) The right to manage should, in concrete terms, mean the right to have a majority on the committee of management. That this majority should not be a razor thin majority is also too obvious to be laboured. Obviously it has to be a substantial majority. Nobody would countenance a situation in which owing to factional divisions a few individuals may convert the majority in a committee into a minority. All this implies that some members of the committee of management should also belong to groups and communities which do not belong to the minority. When these institutions admit students as well as recruit teachers belonging to other communities, it stands to reason that even on the committee of management there should be some persons who do not necessary belong to the ruling group.

Such a thing has never been formalised or codified. Indeed there would be difficulties in the way of doing so. The situation would vary from region to region within the country and it would be difficult to lay down an all-India policy. But as a matter of principle this should be clearly laid down that some persons not belonging to the minority community would be made members of the management. To exclude the members of the majority group altogether would be to perpetuate a state of isolationism. A minority is a minority as long as it feels that it is so. In theory however a minority must in the long run liquidate itself and get merged with the majority. This may not come to pass for centuries together but in theory it can be nobody's contention that once a minority should always remain a minority.

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*Secretary, AIU, New Delhi.

If this framework is accepted it is not only desirable that persons other than those belonging to minority should be members of the committee of management. Indeed it should also be made mandatory. It is in the course of interaction with others which in this case means the majority, that the minority will learn both the things that require to be done. One is to preserve its character as a minority for as long as it considers it necessary and the second is to eventually merge its identity into the majority. How the word 'eventually' is to be defined is a matter that cannot be too closely or too precisely defined. Indeed its definition should depend upon the minority itself. It is only when the minority has got over the minority complex that any kind of drawing together of the minority and the majority can take place. This by itself is not the same thing as the merging of the minority is the majority. That would follow and may indeed take decades and decades.

(d) An important issue that would arise in regard to the task of management would be to recruit persons to teaching and administrative posts. There is the obvious case of the appointment of the head of the institution—be he a principal or a headmaster. Since the head of the institution is the symbol of the institution it can be nobody's contention that he should be anyone other than belonging to the minority. However poor a symbol he be of the minority he is a symbol and therefore most definitely he should belong to the minority group. There is no provision to this effect anywhere. A kind of convention has grown up around the country and by and large it is followed. This is the right convention to follow. If necessary it can even be formalised into a rule or a regulation.

When it comes to the other staff, almost in every minority institution, there are persons who do not necessarily belong to that community. They may be very small in numbers but it would be difficult to find an institution where only members of the minority constitute the entire staff. Once again in this situation a commonsense view should be taken. If a member of a minority is good enough for the job he should get the job. But if he is not good enough to give him the job because he belongs to the minority would be doing violence to the academic system. This has happened not all that infrequently and the results have been deplorable, to put it no more strongly.

What is meant by good enough'? It would be very difficult to define it and indeed no conclusive definition can be given. The only definite thing that can be said is that here the judgement of the university or of the department of education should prevail and not that of the committee of management. After all it is the university or the department which has an overall view of things. They know what is happening in other similar institutions and what interpretation of 'good enough' is being adopted in those institutions. It is their interpretation therefore which should prevail. To permit the minority institution to impose its definition would be to place a premium on whimsicality or subjectivity or worse.

The issue has not been posed in such sharp terms almost anywhere. It is important to pose it however. Unless it is posed in this manner, the answer may not be precise enough or there could be underhand attempts at horse trading and so on. In order to preserve the purity of the academic process it is important that the right to lay down the law in a matter like this is spelt out clearly and unambiguously. In my opinion, it is the right of the university or of the department of education to lay down the law. In case any kind of arbitrariness is apprehended, and this can happen sometime, there can be an appeal to the chancellor or some equally august body. There should however be no compromise on the point that ultimately it is not the minority institution which should lay down the law. The said institution is an interested party. By no standards of reckoning can the interested party be allowed to lay down the law.

(e) The issue of admission to these educational institutions has already been referred to. Students other than those belonging to the minority also are admitted to these institutions but a question which has been raised in certain places is: Are students of the minority community entitled to any preference or any weightage at the time of admission? It would be difficult to return a categorical answer to this question. In certain situations such weightage may be justifiable. For instance, if a community is particulary backward it may be found necessary to provide for this weightage. But that should be only at the early stage of development. The situation would more or less correspond to the reservation of seats in the legislatures for scheduled castes and scheduled tribes in the Indian Constitution. This reservation was provided for a period of 20 years in the first instance. It was extended by another 10 years. And recently it was extended by yet another 10 years. In a matter like this pressure begin to be exerted and these cannot be wished out of existence. There is widespread feeling however that the last extension of 10 years was not really called for. But owing to political exigencies this decision got taken. Unless something unexpected happens, there may not be another extension in 1990, though, to be sure, one never knows.

Applying this analogy to the academic situation, one thing should be clear. Weightage, if any, must be available only at the first degree level and never at the postgraduate level. In other words, if those who have been left behind in the race for equality have to catch up, the handicap can be given at the preliminary stage. To provide weightage even at the postgraduate and the professional stage would be to soften the rigours of the race for excellence without adequate justification. Furthermore, it would also lead to dilution in professional standards and would not work to the advantage of the minority in the long run. Altogether it may be said that

(*Continued on page 625*)

Run For Your Life

S. Srivatsan*

The title of this small write-up may look funny or appear somewhat suspenseful. In this article, the author has interpreted the statement 'RUN FOR YOUR LIFE' in a 'figuritive' and not in the literal sense of '*running away from a situation* (may be a source of threat to one's life) in order to save one's skin and life as well'. Here the emphasis is on '*running* as an activity *to keep oneself physically fit and also to ensure longer life*.

One of the most natural forms of physical activity in the '*Human Kingdom*' is running. Right from times immemorial, man has been 'running' not only to save himself from 'sources of natural hazards, wild animals and enemies' but as a primary physical activity (human locomation) to keep himself/herself physically fit to undertake normal and routine chores falling under formal and informal human activities. 'Physical fitness' is an important phase of the 'total fitness' for an individual wherein mental alertness, emotional control (restraint), social adaptability and moral correctness are also included.

One of the banes of modern age of automation and mechanisation is the absence of '*normal physical activity*' which every one used to involve day to day and which kept all those who participated in '*routine physical activity*', fit not only 'physically' but also in a general sense 'totally'. But strangely this is not so under the 'existing conditions' and everywhere we confront people of all ages, sexes and economic levels *below the line of average physical fitness*. Every one will agree that this is not a 'healthy sign' but a 'writing on the wall' to indicate how the future of the nation lies vis-a-vis *general health of the* masses and the *defence of the country in case of* attack by other countries. The only way to set right this '*serious malady*' is to inculcate in the minds of the people a sense of 'awareness' for physical exercise, scientifically chalked out and presented to them in a proper way.

In western countries like U.S.A., U.K., Canada and in other developed countries such as U.S.S.R., G.D.R., F.R.G., Japan, Australia, Hungary, New Zealand etc. where automation and mechanisation are at the 'peak', there is organised 'Jogging Clubs' (running clubs) for different 'age groups' (especially for people of both sexes over the age of fifty) which have programmes called 'Run for your life'. Such clubs under the watchful and experienced Physical Education staff, Medical Doctors, Cardiac Specialists, and a few local Celebrities such as sportsmen/sportswomen, worked out jogging activities(running at slow pace for certain distances) for their members and carefully organized the 'Jogging Programme' in season and out of season—morning/evening for their members with the sole purpose of promoting physical fitness leading to the enjoyment of sound health.

The main purpose of these 'Jogging Clubs' is to make the 'participants' *physically fit* and also get a 'diversion' from normal routine and monotonous activity—be it in the office or at home as a part of 'retired life or otherwise! The benefits of running as a healthy physical activity are as follows :

1. Loosening of limbs and consequent relaxed feeling.
2. General cardio-respiratory efficiency (stamina).
3. Leg strength (calf muscles, thigh muscles).
4. Joint mobility (knee/ankle flexibility).
5. The courage to face challenges (psychological).
6. Group work (cooperative effort).
7. Interest in personal health (pride to keep fit).
8. Awareness of the 'importance of physical activity' for general fitness.

In view of the above, it is essential to have 'running' included in any well meaning physical activity schedule prepared for age groups—sex groups and socio-economic classifications in our country. Running need not be for 'long distances' but certainly can be upto five miles or the distance reduces as per age groups, sex and other parameters. It is to be understood by all concerned that 'running' does not mean 'speed running' or in sports terms known as 'Sprinting'. Running should be interpreted here as 'Jogging' which means 'running at slow pace' or at a pace desired by the participant. One of the advantages of 'Jogging' for distances is, that whenever the participant feels tired or 'out of breath', he or she can stop jogging and walk slowly to regain breath and again continue jogging to complete the required distance. (Half mile, one mile or more).

Such running activity followed as per schedule prepared by experts would have the way for the participants to gradually tone up the various systems of the body—especially leaving a favourable and beneficial impact on the anatomical, muscular, circulatory and respiratory systems. As the age goes—'*work will not kill a person, but it is the worry that will kill*', any amount of regulated and supervised running activity irrespective of age, sex etc. factors, would ensure longer life, enjoyment of sound general health and above all *physical fitness* so essential for work efficiency in day to day life. It is a pity, we ape western countries in dress, food habits, social customs etc. which are not that much important, but we totally neglect to imitate the attention they pay for personal health and hygiene through day to day participation in organised physical and recreation activities.

To conclude it is essential for every individual to *keep fit* and to achieve this goal, the only way and easiest way is to organise 'Run for your Life' activities under the guidance of knowledgeable persons. In every community locality/neighbourhood at village level of urban set up 'Jogging Clubs/Centres' are to be started as a voluntary service, to attract people by giving incentives such as Banians, Badges, Membership Pins, Awards etc. and thus in addition to creating on 'awareness for physical activity participation' also emphasise on the need for 'basic physical fitness qualities' to keep pace with modern living conditions. This responsibility is not of a few persons only—but is on all of us. □

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Structure and Administration of Universities in Nigeria

B. D. Tikkiwal*

The educational policy in any country should rest on the following three premises (i) Education provides opportunities of growth and removes hampering influences; (ii) It provides culture to the individual and develops his capacities to the utmost; and (iii) It provides training in good citizenship, as it is understood in a wider sense and not in the narrow sense of confirming to the pattern of the Government of the day. It is the third premise, when elaborated, that leads to the practice of greater governmental control on primary, secondary, higher secondary and even College Education to some extent. But, when it comes to the University Education with its emphasis on post-graduate education and research; an individual is required to develop his capacities and is subjected to a kind of culture not possible under direct governmental control.

The structure of Nigerian Universities as seen in the setting up of their various statutory bodies is laid down broadly through an act of federal legislature. The Vice-Chancellor of a Nigerian University is invariably a Professor having vast academic and administrative experience. No politician or bureaucrat is ever appointed in this position.

According to Bertrand Russell's principle, such a practice should prevent the placing of interests of some special political groups against the interests of mankind and should discourage a love of uniformity as prevalent in a herd and a bureaucrat. We, in this country, have experimented with the appointment of bureaucrats as Vice-Chancellor with disastrous consequences in some cases.

According to my information, the bureaucrats are not even appointed as Registrars. The Registry in fact, is run gradually by persons specially trained in University management. Even the secreteries to the University Departments undergo such a training.

Wherever possible, the University Departments are headed by full professors only and they are given wide financial and administrative powers to run the Departments effectively. In matters of appointment a Professor-Head is associated at all stages of appointment. The salary etc. of an individual teacher is fixed in consultation with the Professor-Head.

Statutorily, the teaching and non-teaching staff have to carry on the duties in the Department as allotted by the Professor-Head. But, he does so in consultation with his staff. Thus, we find in Nigerian Universities, both external and internal autonomy a much sought for feature in many other countries.

There is selective approach to admission in Universities through an entrance examination. A limited number of students from backward areas, who are otherwise weak, is given admission in the Univerisities after a remedial course of one year.

Most of the Universities have a four year Honours programme with interdisciplinary approach. This programme provides a sound base for further studies and research. The salary scales in the Universities are comparable with any other public sector and are so structured that one looks for promotion after every two years of service till he becomes a Professor. This promotional scheme is quite similar to one prevalent in Agricultural and allied research Institute in this country. Since the job opportunities for students are great as well, one finds a seriousness of purpose both amongst the students and teachers.☐

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*Professor, University of Rajasthan, Jaipur.

A Note on Minority Institutions

(Continued from page 623)

if weightage has to be given then it must be given for a brief and stated period and not for an indefinite period. To take a rigid decision in the matter however can lead to difficulties and the matter therefore should be kept under review from time to time.

One thing may be stated in conclusion. The final decision should not rest with the minority. Indeed in a matter like this the decision would rest with the majority but let the majority not function in such a way as to give a veto to the minority.

Now that Education is a Concurrent subject and proposals are under consideration even to legislate in this area, it may be helpful to embody some of these suggestions in the form of Central legislation.☐

Technology must suit the society—avers Madhuriben

Convocation

Dr. (Mrs) Madhuri R. Shah, Chairman, University Grants Commission, while delivering the 19th convocation address of the Indian Institute of Technology, Bombay, said:

"The helter-skelter collection of expertise knowledge makes a technician, but it is the ability of correlating and articulating the diverse expertise knowledge from various disciplines that makes a technologist. I am certain that the students of the I.I.T., Bombay, would accept the emerging challenges of their professional life and be expert technologists in modernising society in India. The I.I.T., Bombay, along with others in the chain of the I.I.Ts, has steadfastly and with dedication attempted to fulfil the objectives for which it was established-viz. to function as a premier institution of learning and research in technology and science. The word "technology" here connotes scientific, engineering, technological and managerial knowledge and skills, as well as values that make possible the conception, design, development, production and distribution of goods and services needed to improve the quality of life."

"We owe the setting up of the IITs and their present status to the vision and perception of Pandit Jawaharlal Nehru, who realised the role of Science and Technology for the development of modern India. For Nehru, science was more than a professional pursuit—it was a way of life. The Science Policy Resolution of 1958, moved by him in the Parliament, was, in fact, the first of its kind anywhere in the world. The beneficial impact of our firm reliance on science and technology is clear in several areas such as agriculture, capital goods, plant and machinery, rural electrification, etc."

"It would be worth recalling that the developed countries of the West, where industrial revolution started early had enough time to adapt to change and establish the necessary scientific attitude. On the other hand, we are trying to achieve in the space of a few years, what was gradually achieved by the Western countries in a course of several decades. Yet, it can be said with some pride that the necessary infrastructure needed for a technological growth and change has been developed in spite of the enormous problems created by population explosion. The most perplexing problems facing developing countries like India are unemployment, underemployment, rapid growth of labour force and a rural-urban migration. But these problems cannot be solved by crying halt to technological progress. What is needed today is the concept of social assessment of technology which leads to reappraisal of the role of science and technology in contemporary society, both with regard to policy and final objective. Technology needs to be redefined as 'systematic and purposeful application of knowledge, skills and expertise towards the solution of a problem useful to man'. While science is universal, technology must be specifically related to a given social and environmental milieu, if it is to serve our people rather than overwhelm them. Developmental objectives, cultural value systems, resources and technology are not autonomous. They constitute a dynamic, interconnected organisation, mutually stimulating or constraining one another."

"The greatest challenge of our times is to draw all our countrymen in the development task of our nation and ensure each of them a modicum of human dignity. The most modest programme must therefore aim at bringing within the grasp of every man, the basic necessities of food, clean drinking water, shelter, clothing, health, education and communication. The strategy clearly would be to highly optimise the complex system of social objectives, resources, and technology with respect to the above goals. And this poses a challenge to everyone including the IITs, other institutions of higher education and research, and the young graduates of today".

"Mahatma Gandhiji said: "the problem of poverty will never be solved by an indiscriminate importation of machinery and technical skill". In his view the supreme consideration was man, and he prized every invention of science and technology to the extent it benefitted all human beings. Clearly, the technology we need to develop must be suited to our society and be responsible to our people, whether we call it appropriate technology, relevant technology or rural technology. As we move in the 1980s, the last two decades of the present century, nay the second millennium, the question which must face every engineer is: how can the good consequences of technological revolution be extended to the whole of humanity and how can the bad consequences be remedied or avoided? It is essential that young men and women, entering the engineering profession today devote their best energies to solve this problem."

Earlier, Dr. Raja Ramanna, Chairman, Board of Governors of the Institute, welcomed the Chief guest and gave an account of the significant achievements of the Institute. He said that in 1961 the Institute was accorded the status of a University, and it was declared an Institution of national importance. Over the last twenty years, the Institute has tried to be worthy of this declaration of Parliament and has striven to provide the highest quality of education and research, in conformity with the needs and aspirations of the country. From this year, the Senate has introduced a new four-year B. Tech. programme with several new features. New courses such as 'Energy Systems Engineering' and 'Remote Sensing' are being introduced at the postgraduate level to meet the needs of Industries in these fields. Teachers from Engg. and science colleges are offered the facility to pursue M.Tech. and Ph.D. courses under quality improvement programme. Scientists and engineers in various organizations and laboratories are also extended the facility of external registration for Ph.D. At present 102 persons are pursuing these courses under quality improvement and external registration facilities.

The Institute has been interacting effectively with engineering, chemical and pharmaceutical industries in Bombay. Over 150 consultancy jobs were undertaken last year under the aegis of the Industrial Research and Consultancy Centre which was established in 1975. The Centre is also having more than 85 ongoing sponsored research projects at present, supported by organizations such as the Department of Science and Technology, the Department of Atomic Energy, Ministry of Defence, Indian Space Research Organization, etc. Among the various sponsored research projects undertaken in the Institute mention was made of the development of solar cold storage unit and sterling engine of 200-250 watts capacity working on solar energy, bio-gas and agricultural wastes as also the development of a 300 KVHr. latent Heat Solar Energy Storage System. In response to the current world water decade programme, the environmental sciences and engineering group has undertaken studies leading to the development of new systems for optimum rural water supply in Manipur, Mizoram, Jammu and Kashmir and Bhutan at the request of UNICEF.

The Institute continued to participate in international collaboration programmes. With the assistance received from the UNESCO/UNDP, the Industrial Design Centre of the Institute has undertaken projects on Development of Design Education in India. The Institute had a Bi-Institutional programme of exchange of faculty with Wroclaw Technical University in Poland in the areas of Coal Sciences, Futurology, Polymer Concrete and Inorganic Chemistry. Another collaborative programme with some U.K. Universities involve augmenting the activities of Off-Shore Engg. Group in the areas of Soil Mechanics, Hydraulics and Structural Engineering.

Education, Dr. Ramanna remarked, becomes meaningless unless it enables one to function as a responsible individual, sensitive to the environment in which he is placed. In this context, he informed that the students of the Institute have displayed innovation and enthusiasm in their cultural and sports activities.

About the brain-drain, Dr. Ramanna said that since the country spends a considerable amount on IIT students, it can reasonably expect in return commensurate benefits. He expressed his anxiety over the large exodus of people trained in advanced technology here to foreign countries. It is ture that sometimes the sociological conditions make the students overlook the overall interests of the nation, but then he felt that the love of ones own country should be stronger than any other advantages one may gain by migrating or changing ones alma mater field. Whatever others might think about the future of this country, Dr. Ramanna was convinced that it was full of challenges and opportunities and would set an example to other parts of the world as to how as to solve problems technologically without losing faith in one's own self. He urged the students to take part in this great experiment, and face the problems with courage and optimism rather than run away from them.

Personal

1. **Dr. G. Lakshmi Narayana has taken over as the Vice-Chancellor of the Jawaharlal Nehru Technological University w.e.f. 5th November, 1981.**
2. **Dr. Sukhdev Singh has taken over as the Vice-Chancellor of Punjab Agricultural University.**
3. **Prof. B. Ramachandra Rao, Vice-Chairman, University Grants Commission, has been re-elected President of the National Academy of Sciences for the year 1982.**
4. **Shri S. Ramachandran has taken over as the Registrar of Tamil University, Thanjavur.**
5. **Dr N. Lakshmipathi, Director of the Institute of Nuclear Medicine and Allied Sciences has been awarded the Homi Bhabha Memorial Award for 1981 for his outstanding research contribution in the field of nuclear medicine.**
6. **Mr K.G. Subramaniyan, an eminent astist of Santiniketan has been awarded the Kalidas Samman for the year 1981-82 by Madhya Pradesh Government.**

Campus News

National seminar on educational journalism

Realizing the increasing relevance of Educational Journalism to national development and recognising the need for making educational journals, newspapers and periodicals more effective media of mass education, the All India Federation of Educational Associations (AIFEA) in collaboration with the Indian Council of Social Science Research (ICSSR), Southern Region Centre, with the assistance of the Departments of Communication & Journalism and Education of the Osmania University, convened the Second National Seminar on Educational Journalism at Hyderabad. The Seminar after due deliberations made the following recommendations.

Scope and content

(i) Educational journals serve as channels of effective communication amongst all those interested in education. These include teachers, students, parents as well as the public. The purpose of these journals shohld be to disseminate information on all aspects of education including objectives of education, policies and programmes, developments, organisation, financing, innovative projects, research findings, etc.

(ii) Over the years investment in education has been growing. At the present moment it is close to 4,000 crores per year. This is a lot of money and it is important that everybody concerned should know how the money is being spent. Proper evaluation of educational policies and monitoring of implementation and feedback processes need to be ensured. For this purpose therefore educational journalism should be treated as a part of the teaching-learning process.

(iii) While the content of educational journals will largely be determined by the objectives laid down for that journal, it is important to specify the target audience for whom the journal is meant. At the present moment several journals choose to deal with educational objectives which are of interest to more than one kind of audience. This prevents the journals from having the required focus. Readership needs should be given adequate attention, therefore.

(iv) As of today, the number of educational journals brought out in regional languages is not as large as it can be. In quite a few States even primary school teachers are sought to be approached through the medium of English. This is self-stultifying. It is important to bring out journals in the various regional languages so that more and more teachers, get drawn into their circle of readership and there is better communication as amongst the teachers and also that the literate population of the community is benefitted by them.

(v) For obvious reasons, the contents of journals would deal with a wide variety of subjects. At the primary and secondary level one of their objectives should be to inform the readers. A large number of readers do not have access to the latest knowledge. The experiment tried by several journals which give details, reviews and even extracts from some of the latest books is to be welcomed. Above all, the approach adopted by the writers should be the problem-solving approach. Diagnosis is welcome but not to go on to solve the problem diagnosed is not going to help the situation in a developing country like India. Altogether therefore the approach of authors should be to diagnose and also to suggest solution of the problems that have been diagnosed.

Wider dissemination

(i) In addition to educational journals brought out by various organisations and agencies, efforts should be made to call attention to problems of education through other well-established newspapers, periodicals and the mass media. There should be columns dealing with educational matters in dailies, weeklies and other periodicals. Initiative in this regard can be taken by anyone concerned with education. The important thing to ensure is that educational developments are not neglected but receive the attention that is due to them.

(ii) Similarly, both the All India Radio and the Doordarshan need to be persuaded to have regular features on educational activities. Hardly any effort has so far been made, for example, to raise the professional competence of teachers who are scattered in villages and towns. With the INSAT likely to become operational in the near future, attempts should be made to utilise its resources so as to help the teaching community grow in knowledge as well as in responsibility.

(iii) A number of national and State level educational and research, and training organisations, e.g., NCERT, ICAR, UGC, ICSSR, AICTE, SCERTs etc. are producing a wide variety of literature which has a close bearing on various aspects of education. A link up between these various organisations and educational journals is important. Efforts should be made so as to ensure that the literature they publish comes to the knowledge of teachers all over the country.

Reporting and editing

Writing and reporting for educational journals is a highly skilled job. One reason why educational journals currently published in India are not up to the mark is because of the absence of the kind of professionalism which must be brought to bear on publications of this kind. Since it would not be possible for journalists to be inducted into these educational journals in a systematic way it is important that such of the teachers who are interested in educational journalism are enabled to acquire these professional skills.

Training and research

(i) This makes it imperative that training courses are organised for those who wish to acquire these skills. There are organisations like the NCERT, UGC, Department of Journalism and Communication and colleges of education which should undertake the task of training of teachers in the field of educational journalism.

(ii) Various levels of training would be required to match the interests and background of those who wish to undertake this training. The All India Federation of Educational Associations should take initiative in organising training workshops with the help of the various organisations listed above.

(iii) In order to develop educational journalism as a professional academic discipline including facilities for specialisation, it is necessary to start courses in educational journalism in the University departments of journalism and education. Where necessary these could be interdisciplinary courses with facilities for research and practical training.

Journals of teacher organisations

While educational journals can be brought out by various institutions, teacher organisations would always continue to have considerable interest in publishing such journals. These journals should speak to, for and on behalf of the members of the organisation. They should "inform the members on all aspects of the respective organisation's policies and activities" and "give a lead on all aspects of educational and professional opinion". All such organisations should endeavour to work towards the formulation as well as implementation of a national educational policy. At the same time they should pay due attention to the regional diversities of different areas.

Problems of printing and production

Very few journals at the moment are well produced and well got up. Most of these are run on a voluntary basis by persons who have missionary zeal. This is most gratifying. But at some stage these journals would have to be brought out on a professional basis and therefore due attention would have to be paid to layout design, make-up and format skills and such other features. When training courses are organised attempts should be made to draw veterans of educational journalism and printing technology into these courses.

Distribution and finance

(i) Lack of funds and absence of professional competence are diagnosed as the two basic problems of educational journals. In addition to raising funds from private sources it would be quite in order to approach the Government also and secure financial help through these various agencies. As a way out of difficulty, financial assistance from any source could be linked to the number of subscribers which would ensure that aid would depend upon performance and professonal competence.

(ii) At the same time advertisement support should be secured for the journals from all available sources.

(iii) Since printing paper has become abnormally costly almost out of reach of the educational journals, the Central and State Governments may be approached for allotment of white printing paper and also imported newsprint specially for these journals.

(iv) The Directors of Public Instruction and Directors of Public Libraries may be requested to make bulk purchases of the copies of these journals for supply to schools and libraries.

(v) Educational periodicals could advertise among themselves on a reciprocal basis.

(vi) The functioning of educational journals should be streamlined and professionalised with supporting staff for editing, circulation etc.

(vii) The possibility of establishing an All India Association of Educational Journalism may be explored after consultations among editors and organisations connected with educational journals.

Improvements in engineering education teaching

The Regional Engineering College, Warangal and the REC Teachers' Association, Warangal are jointly organizing a seminar on 'Improvements to teaching in Engineering Education' on 8th and 9th January 1982 at Warangal. The seminar is open to the teachers of all Engineering Colleges and institutes of technology in the country.

The topics proposed to be discussed at the seminar are : Teaching in Engineering Education—identification of deficiencies and remedial measures—improvements and innovation; Teacher selection, training and evaluations; Motivation and incentives for good teaching; Social and environmental factors; Organizational and administrative aspects.

Further details may be obtained from :

Dr. S.S. Balakrishna, Organising Secretary, Regional Engineering College, Warangal-506004 (A.P).

Panjab recognises Guru Nanak Institute

The Guru Nanak Institute for Comparative Study of Religions in New Delhi has been recognized by the Panjab University, Chandigarh as a centre for research for doctorate in areas of Sikhism in relation to other Indian religions and Sikh sacred literature. The Guru Nanak Foundation, which runs the institute, has said that the research in Punjabi, Hindi or English will be conducted at the Institute.

Simla holds history seminar

Prof B.B. Lal, Director, Indian Institute of Advanced Studies, Simla, has urged the State Government to set up a Department of Archaeology to preserve the neglected ancient monuments pertaining to the cultural heritage of Himachal Pradesh. He was delivering the valedictory address at a seminar on "Regional History Writing with Special Reference to Western Himalayas", which was held in Simla. Prof Lal said that the archaeological explorations and excavations, carried out by various agencies in the State, constituted an important source of material for future historians. He suggested addition of a new section on archaeological studies to the Department of History in Himachal Pradesh University. Prof Lal emphasised the need for a sincere effort to work on the prehistoric period of the western Himalayan region for a better understanding of the social progress in the region.

Historians from various universities in northern region participated in the seminar. It brought to light various aspects of the life, culture, art and religion of the people in the western Himalayas.

In his paper on "Regional History Writing—A General Study". Prof L.P. Pandey, Head of the Department of History, Himachal Pradesh University, discussed the factors influencing the course of the history and culture of the people. He said that ancient Indian rulers kept in view the social norms and culture of a region while formulating their plans.

Prof. P.L. Mehra, of Panjab University, Chandigarh, said that the British administration in different parts of western Himalayas was a patchwork conditioned by the prevailing circumstances.

Dr. Y.B. Singh of Jammu University said in his paper on "The Study of Regional History with Particular Reference to Jammu and Kashmir" that recurring foreign invasions and trade relations influenced considerably the process of socio-economic and political changes. He stressed the need for a new interpretation of the early history of Kashmir and its adjoining regions.

Prof. B.R. Grover, Director of the Indian Council of Historical Research, New Delhi, said that Buddhism was introduced in China by some enterprising Kashmiri scholars.

Miss Madhavi Yasin from Srinagar discussed the impressions of the European travellers about the women in Ladakh. According to her, the social freedom enjoyed by the Ladakhi women and their pleasing manners and other qualities surprised many a European traveller.

Mr. R.K. Sharma from Nahan highlighted the methods adopted by the people during popular movements in the hilly states of western Himalayas.

Discussing the "Early Spread of Buddhism in Ladakh", Mr. Nawang Tsering said that before the introduction of Buddhism, the Ladakh people practised the Tibetan religion founded by Ton-ba Shenrab at a place called Zhang-Zhung.

Mr. M.R. Singh of Rajasthan University gave a Puranic account of the western Himalaya history.

In a paper on "References to Kangra and Sirmur in Early Medieval Persian Sources", Mr. I.S. Chandel of Kangra quoted extensively from the various Persian sources, including Tarikh-i-Yamini, Tabqat-i-Nasiri and Amir Khusrau's Diwan Wastulhayat.

Mr. Hari Ram Gupta traced the Sikh relations with Himachal Pradesh. He referred to the visits of the Sikh saints to Sirmur, Mandi, Nalagarh and Paonta Sahib.

Other paper presented to the Seminar included "Buddhist Monastries in the Western Himalayas" by Mr. O.C. Handa,

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"History of Development in Medical and Public Health Education in Himachal Pradesh" by Miss Madhu Sharma and "The Uttarkhand Art—Some Special Features" by Mr. Sheo Bahadur Singh.

NBT develops rural interest

The National Book Trust proposes to publish books of rural interest with a view to giving village readers literary material on topics of their interest. The material in the form of booklets will be prepared in local languages after field surveys of reading habits and is tested before intended audiences. Writers and illustrators, familiar with the scene, will be involed in the programme.

Mr. Krishna Kripalani, Chairman, NBT said, in New Delhi, that the project was designed to fill a gap in Indian publishing. Two pilot projects undertaken in Orissa and Gujarat have encouraged the NBT to expand its scheme on a national scale. Mythological stories, histories of local places, matters of regional interest as also that could foster a spirit of national integration could provide the content of such booklets.

He made it clear that the programme would not duplicate that of the directorate of adult education. Nor would it concentrate on technical topics meant for closed groups.

Hindi academy for Delhi

An academy will be set up in Delhi to promote the use of Hindi in all possible ways in the Union Territory. A decision to this effect has been taken by Lt.-Governor S.L. Khurana at a meeting held at Raj Niwas. The proposed Hindi academy will have a library of its own. It will give incentives to Hindi writers and poets and literary persons. Every year the academy will also give an award for the best literary creation in Hindi.

Tamil history in epic form

The task of writing the history of Tamil in an epic form will be taken up by the Tamil Sangham, which is to be established at Madurai shortly.

Mr. G. Ramachandran, Chief Minister of Tamil Nadu while making this announcement said in Madras that the life of Kannadasan would also find place in the epic to be written by the Sangham.

Rare articles donated to Tamil Varsity

Rare museum pieces and articles presented recently to the Tamil University by Mrs. Hilda Raj were received by the Vice-Chancellor, Prof. V. I. Subramaniam. The donation consists of sheafs of very rare books, ancient paper manuscripts and museum pieces including iron combs, lamps, old implements, bone pieces, rare and semi-precious stones, all connected with the culture of Tamilnadu, the American Indians and the African tribes. Some more articles and books are likely to be received soon from Mrs. Hilda Raj former Professor of Anthropology and Culture of Delhi University and the American University. Her interest in building up the museum in the Tamil University and her offer of honorary assistance in building up the museum were welcomed by the Vice-Chancellor. The museum pieces are now exhibited in the Old Palace Buildings for public view. Mrs. Hilda Raj is the wife of the late Mr. James Raj, one of the Vice-Presidents of the World Bank and is a native of Thanjavur.

Sanskrit preserved India's glorious past

The fifth World Sanskrit Conference was held on the campus of the Banaras Hindu University. Mr. Vishwanath Pratap Singh, Chief Minister of Uttar Pradesh, while inaugurating the conference spoke of the glory of the language. He called for a vigorous search for the past traditions of the country which, he said, had been preserved through various works in Sanskrit language. He said this was the work of this language which had tried to provide a link between the man and the rest of the being. The Chief Minister also inaugurated an exhibition of Sanskrit manuscripts at the Kala Bhavan of the university.

Prof. R.N. Dandekar in his presidential address said that Sanskrit was the link between India and European countries. He narrated the influence of this language in Buddhism. He lamented that the language was being neglected everywhere. In ancient India Sanskrit was given a prominent place and Indian culture was built on it, but in the modern Indology learning of Sanskrit was not given any prominent place. He pleaded for an objective appraisal of the study of Indology. He expressed his dissatisfaction over the claim made by some Sanskrit protagonists over the development of the language. He expressed concern at the poor upkeep of Sanskrit literature and manuscripts. These manuscripts are needed for conducting research on the language. A survey of the manuscripts was made by a committee appointed by the Union Government recently, but he said only half-hearted measures were being taken to implement the recommendations of the committee.

Dr. Iqbal Narain Vice-Chancellor of BHU while welcoming the delegates explained the importance of this city which was the centre of learning for many centuries. It was in Varanasi where Vedic Jain and Buddhist schools of thought flourished. About 1200 delegates including 250 scholars from Japan, USSR, USA, West Germany, Bangla Desh and Italy attended the conference.

Studies of Sanskrit and other Indian languages—both ancient and contemporary—in the Soviet Union, are becoming more broad-based. While Sanskrit is taught at several universities in the Soviet Union there are a number of centres where detailed research is being conducted.

As many as 40 Soviet scholars took part in the conference, and the fact that many of the scholars were young augured well for the future of Sanskrit studies. Recent archaeological findings in the Central Asian republics had provided a new impetus to the study of Sanskrit. Some manuscripts found in Central Asia were Buddhist documents originally from India. It was worth noting that some of the documents recovered were older than the oldest available in India—because the climatic conditions in the area did not cause them to deteriorate as did the conditions in India.

The Sixth World Sanskrit Conference will be held in Philadelphia (U.S.A.) in October, 1984.

Geographers' neglect regretted at Patna seminar

Dr. Ramavatar Shukla, Chairman, Inter University Board of Bihar while inaugurating a national symposium of geography and regional development, said the policy makers had always neglected geographers. Geographers, he said, had not been consulted in formulation of the various projects with the result that many avoidable mistakes one could notice. The symposium has been organised by the Department of Geography with financial assistance from the University Grants Commission.

The Vice-Chancellor of Patna University, Dr. Sudarshan Prasad Sinha, presented a felicitation volume to Dr. P. Dayal, Head of the Department of Geography, Patna University on behalf of geographers. He lauded the role of geographers in eliminating regional disparities and in allround national development. He asked them to formulate suggestions for regional development of Bihar which was the most backward state in the country.

The Vice-Chancellor of Meerut University, Professor R.L. Singh, who was the chief guest, stressed the role of geographers in regional development and planning. He asked the geographers to examine regional development process of Japan at both regional and national levels and try to integrate the development programmes of India. In Japan, he said, a village had also its say in a national programme. He said that geographers could also integrate all sciences for peace and prosperity of mankind. They should formulate guidelines for proper distribution of the existing resources.

PM inaugurates silver jubilee celebrations at JNU

The Prime Minister, Mrs. Indira Gandhi, while inaugurating the silver jubilee celebrations of the School of International Studies of the Jawaharlal Nehru University, said that India had no desire to get entangled in rivalries and conflicts of power blocs and their war preparations. Military alliances, she said, entailed obligations that might not entirely be consistent with a nation's concerns. She pointed out that many countries even within such alliance were somewhat restive and apprehensive about bases and the stationing of missiles. She observed, 'if not non-alignment at least the independence of minds and action that it implies seems to be gaining an unsteady toe-hold within the block. Stressing that nations could not be classified as "permanent enemies or permanent allies," Mrs. Gandhi said India deplored the return to cold war postures and noted the hints of reservations by big power allies about being pulled into "crusades and grand designs." She said that a nation's foreign policy could not be divorced from its 'domestic aspirations' and was shaped by its geographical position. Mrs. Gandhi said a nation which had witnessed colonial rule could not but adopt a 'particular stance on questions affecting national independence'. The nation's foreign policy was also guided by its historical experiences in the aggregate and in terms of its past success. It had to struggle and make sacrifices for its freedom had a different attitude to hegemony that those who became sovereign the 'easy way'. She observed that a nation which had been subjected to invasions had to be specially careful about its security. She said non-alignment was not an 'objective but a policy in itself.' Elaborating, she said the objective was freedom of judgement and action to safeguard a nation's ture strength and basic interests. She warned that temporary additions to strength sometimes led to compromising the nation's long-term security. Had we built our defence forces at the behest of others or through gifts of armaments, the task of decision and policy making would have moved out of our hands, she stressed.

She said there were instances when recipients of armaments did not think only of serving the interests of donors, but use them for their own purpose. Mrs. Gandhi said the very concept of nationhood was of fairly recent origin and many nations were breakaway parts of former empires. A common religion or a common language were often regarded as pre-requisites of nationhood. The Prime Minister maintained that the gigantic problems of the country needed our total attention, peace was imperative to solve these problems, to achieve progress and to strive for alround self-sufficiency.

Rao cautions against hasty education reforms

Prof. B. Ramachandra Rao, Vice-Chairman of University Grants Commission, while presiding at a function organised by the Education Department of Osmania University in Hyderabad to honour distinguished teachers from Universities and Colleges in the State, said that hasty reforms will lead to hasty retreat. Many reforms received a set-back in the past as they were "introduced in an imperfect manner". In this context, he referred to the introduction of internal assessment and semester systems in the Andhra University some years back, which were scuttled. Reforms proposed should be discussed thoroughly and the people should be made to receive them. Stressing on the need for qualitative improvement in education along with the increase in the number of educational institutions, he said that the teachers should teach the students not with the objective of ensuring their success in the examination and earning a living; but with an aim to make them useful citizens.

The main purpose of teaching should be to inculcate among the students a deep interest in the subject and to arouse curiosity among them. The methodology of self-teaching should be taught by a teacher.

Bloomfield pleads for collaboration between archivists & librarians

Mr. B.C. Bloomfield, Director, India Office Library in London, while speaking in New Delhi said that archives and libraries are not two different worlds. If archivists and librarians learnt a little from each other, the world would be served better in the conservation of records. He felt that archivists could learn management techniques and the art of organising material from librarians. They could also learn how to be less rigid in their approach to documents. Librarians on the other hand could do well by learning the art of concentration and conservation from archivists. Librarians only knew how to make available the material demanded by people. They had no idea of the value of their stocks because they were easily available in the market and if they were damaged, they could be replaced.

He said that the India Office Library in London had a very good collection of missionary archives and census records. There was nine miles of shelf space records, 11 miles of shelf space of books, 20,000 manuscripts in oriental languages, 1.70 million photographs and numerous oil paintings, drawings, plans and charts. Almost 50 per cent of the enquiries made there were about deaths, births, baptism and entitlement to pension. There was a plan to start a computerised service for giving prompt information to the public.

In the United Kingdom, the library association had initiated steps to bridge the gulf by setting up bodies like the society of archivists and the institute of information scientists. The recent renaming of the UNESCO bulletin of libraries, covering the entire gamut of libraries, archives and information science was an encouraging example of the rapproachment effected in this direction.

Wild life studies at ten universities

A committee of experts, set up by the University Grants Commission to promote wildlife studies, has identified 10 universities for initiating teaching programmes in this field. Some universities like Poona, Madras and NEHU have already introduced these studies in their courses at the post-graduate level. These universities have an easy access to wildlife sanctuaries which is a prerequisite for starting the programmes.

The Union Ministry of Education and Culture has also suggested that steps should be taken not merely to promote specialized research and advanced studies on wildlife, but also include topics relating to flora and fauna in the various courses, to create interest in the subject.

The UGC committee on wildlife studies has set up a group to prepare a syllabus for a wildlife biology course at the undergraduate level. This group will also take up the writing of textbooks, and preparation of teaching materials. The Commission has already approved 10 well-defined research projects in wildlife studies to be taken up by teachers in university departments and colleges. It has also identified urgent areas where such research is to be undertaken.

The Panjab University has already organised a six-month training programme in collaboration with the Forest Research instittute, Dehra Dun, to train an adequate number of teachers to serve as resource personnel for developing and teaching these courses. The teachers will spend over two months out of this period in the field. This is the second such training programme to be held with the UGC's assistance. The first was held in Bangalore in 1977.

Delhi proposes new scales for physical instructors

The Academic Council of Delhi University at its meeting held recently decided to designate directors of physical education as teachers. This decision is yet to be approved by the Executive Council. Once the decision is approved, about 70 directors of physical education in the university will be redesignated as teachers and will get the same salaries as teachers. The physical education directors have been demanding a change in their designation since 1973.

News from Agril. Varsities

Training course on rural Aquaculture

Regional Research Laboratory, Jammu organised a Training Course on Rural Aquaculture, which was sponsored by United Nations International Children's Emergency Fund. Prof. Satya Bhushan was the Chief Guest at the inaugural function and delivered the key-note address. In his address prof. Bhushan emphasised the need of providing avenues of employment and other facilities in rural areas so that drift of population from rural areas to urban areas is checked. He lauded the role of RRL, Jammu in the dissemination of scientific knowledge in rural areas. He advised other institutes and organisations to draw inspiration from RRL, Jammu in this regard. Prof. Bhushan was of the opinion that progress of villages is the real progress of the country. Fortunately, much investment is not required in bringing progress in rural areas, only proper education has to be imparted.

Dr. N.S. Pathania, Principal, Government Medical College, Jammu, inaugurated the Training Course. Dr. Pathania appreciated the contributions of RRL, Jammu in the field of growing fish in village ponds, which if followed seriously would supplement the high quality protein (free from cholesterol) resources of this region.

Earlier welcoming the invitees and the trainees. Dr. C.K. Atal, Director, RRL, Jammu explained at length the need for educating rural people in the application of science and technology in their day life. He further stated that though growing of fish and plants in water bodies is being practised since time immemorial, but with the adoption of scientific techniques these can be grown even in ponds where these could not be grown earlier and the yield is also increased manifold. The present course would impart training on these lines. UNICEF is highly keen in augmenting protein resources of the world so that children are assured of balanced food. Thus they have not only shown active interest in the Laboratory's work on Aquaculture but have sponsored the course being organised by RRL, Jammu. He was of the opinion that the gigantic task of educating rural people in the field of science and technology cannot be done by one Institute alone. For this the cooperation of other agencies is also needed. Mr. Dev Raj Sharma, Director, Rural Development also spoke on the occasion and expressed his hope that the Training Programme will sharpen the rural extension work and catalyse the adoption of modern practices by the villagers.

The project on Aquaculture was initiated in 1975 in RRL, Jammu with the introduction of an ordinary Carp variety from Kangra. This was followed by introduction and acclimitization of 5 more fresh water species never grown earlier in Jammu region. Later large scale breeding of fishes for stocking village ponds and other water bodies was taken up.

Learning the success of our Aquaculture programme, a team from UNICEF led by Mr. A.F. Coss, Advisor, Middle Zone, visited our Laboratory and after various meetings and discussions, offered aid approximating Rs. 7.5 lakhs for Rural Aquaculture Programme including training of youth in this field. This one month training course is a part of the said programme.

The training course was attended by 19 departmental candidates like Block Development Officers, Agriculture Extension Officers and Village Level Workers and 76 village youths. Most of these trainees have expressed their desire to take up Fish Culture as a commercial venture after completion of the training.

Prof. Y.R. Malhotra, Head of Biosciences Department of Jammu University gave a talk on 'Fish diseases and their control'. Shri D.R. Sharma, Director, Rural Development (J & K) discussed details of Fish Farming in Jammu region and Mrs. Poonam Dhawan of Jammu University spoke on the subject of Adult Education. The faculty from RRL, Jammu consisted of Shri J.B. Srivastava, Dr. S.K. Chowdhary, Dr V.K. Gupta and Shri J.P. Sharma of Rural Technology Division and Dr. C.L. Chopra, Dr. K.S.M. Sastry, Shri A.K. Bhatia, Shri B.P. Saxena and Shri B.L. Bradu from other Divisions. The topics discussed consisted of pond construction, varieties of fishes, fish spawning and reproduction, nursery management and care of spawn, fish feeding and nutrition, aquatic ecology, aquatic microbiology, aquatic weeds and economics of fish culture.

Some other topics discussed were common diseases of vegetables, grain protection and making best of the food we use.

At the valedictory function which was organised in Jammu, the Chief Guest Shri Sohan Singh distributed the certificates to the trainees. In his Address Shri Sohan Singh explained how fish cultivation had progressed in nearby Pathankot, Gurdaspur area wherefrom fish is being supplied to Jammu market. He expressed the hope that the trainees, equipped with the knowledge they have acquired in the course, would start fish cultivation in their respective areas. He congratulated RRL, Jammu and the trainees for the success of the training course.

Kisan mela held at Patiala

Mr I.C Puri, Chief Secretary, Punjab, said in Ludhiana that the farmers should develop close contacts with the University experts to know about the latest agricultural practices. On the other hand the scientists would also know about the latest field problems experienced by the farmers which would help formulating future research programmes. The University experts told the farmers to adopt diversification in agriculture since the cost of production of cereal crops had tremendously increased and thus it had become unprofitable for the farmers. They advised the farmers to adopt other skills like fruit and vegetable growing mushroom cultivation, bee keeping, poultry farming and dairying. The cultivation of medicinal crops like fennel, isbgol, coriander and celery should be taken up by the farmers, they added.

Post harvest technology research centre at PAU

Dr K. Kirpal Singh, Director of Food Technology, Processing and Marketing of the Punjab Agricultural University said that his Directorate had been identified for the establishment of a sub-centre for carrying out research work on post harvest technology by the Food and Agriculture Organisation (FAO). This FAO-Sponsored programme, envisages to promote agro-industries in the region. It is estimated that with the promotion of agro-industries dealing with the marketing and processing of surplus primary agri-horticultural commodities would ensure better utilization, more profitable marketing and better economic returns to the farmers and generate more job opportunities to the rural sector.

Economics institute proposed by ICAR

Dr. O.P. Gautam, Director General of the Indian Council of Agricultural Research while presiding at the 5th meeting of the Regional Committee of the ICAR for Tamilnadu, Kerala and

Karnataka held at the Tamilnadu Agricultural University, Coimbatore, said that in the present context of importance being given to agro forestry and dry farming their research must be oriented towards these aspects of development and on export oriented crops like spices, tubers etc. He said that the ICAR had also proposed to establish an agricultural economics institute to study and initiate measures for the economic development of those engaged in agriculture. The proposal of the Tamilnadu Agricultural University to start a water technology centre with the assistance of the Swedish International Development Ageney on an outlay of Rs 1.15 crores was being approved There was some inevitable delay in clearing this project in view of its financial implications. Dr. Gautam said that they had today the best technologies available for improving dry farming but their utilisation called for better extension work and establishment of closer link between the research institutions and extension agencies. The ICAR gave priority for the development of post harvest technology and had taken steps to organise coordinated research centres for the purpose He disclosed that the ICAR had sought collaboration with other countries like U.K. and the USA, which had the experience and expertise in the preservation of horticultural and agricultural produce.

PAU holds personal contact programme

The college of Home Science of the Punjab Agricultural University organised a one-day State-level personal contact programme for the farm ladies undergoing one-year training course in Home Science through correspondence. Farm ladies from all over the State participated in the programme. The experts of the University discussed the latest technologies and arranged demonstrations for the participants. This programme is a part of one year training course through correspondence for the farm ladies of Punjab. This course is the only course of its kind in this country where professional training is being imparted to the ladies through correspondence. University admits every year 200 farm ladies in this course and training is given through different lessons on various subjects where farm ladies play an important role. Dr. (Mrs.) S. Bajaj, Dean of the College who presided over the concluding session, emphasized the role of farm ladies in the development of farm and home. She also stressed the need of adopting the new but cheap technologies for improving home and farm.

New variety of desi gram released

The Punjab Variety Approval Committee which met at the Punjab Agricultural University under the Chairmanship of Dr. Mukhtiar Singh Sra, Director of Agriculture, Punjab, has approved a new variety of desi gram for general cultivation in the State. The new variety which is named GL-769 is early in flowering. Its plants have long protruding errect fruiting branches which contribute to high yield because of relatively high number of pods. Owing to long fruiting branches, its plants attain a height of about 70 cm. It has slightly bolder grains than the existing G-130 and C-214 varieties with brownish seed colour. The new variety, on an average, gives about 7 quintals of yield per acre both under irrigated and un-irrigated conditions which is about 30 per cent more than the existing C-214 and G-130 varieties recommended for rainfed and irrigated areas respectively. The new variety is fairly resistant to wilt, foot-rot and root-rot diseases.

Science & Technology

Special board to help jobless scientists

A National Science and Technology Entrepreneurship Development Board is proposed to be set up to help unemployed scientists and technologists take up self-employment schemes. This follows a recommendation of the Science Advisory Committee to the Cabinet (SACC) in the conetext of the growing unemployment among S and T personnel. About three lakhs of them are unemployed, the bulk of whom are graduates in science and diploma holders in engineering. There are also an estimated 50,000 unemployed among degree holders in engineering medicine and agricultural and veterinary sciences, besides postgraduates in science

To tackle this problem SACC had, at its meeting in July, suggested a three-pronged strategy.

Science seminar in Delhi

An international science seminar on the "Living State" will be held in New Delhi from December 13 to 19. Delegates from UK, USA, Germany, France and the USSR are expected to participate be sides Indian delegates from the Universities and research institutions. The seminar will discuss how a system in living state differs from the state when it is dead or inert.

Mr Frohlich, a representative from the UK would talk on "coherence of excited states in body which leads to phenomena otherwise improbable," while the US expert, Mr Morowitz, will dwell on "energy flows in the living organism". Dr R.K. Mishra of the AIIMS will present a paper on "the relevance of pseudo-particle of energy and generalised and comprehensive formulation for the origin and persistence of evcited states responsible for ageing of organisms while they are alive".

Medical Education

ICMR develops mini pill

The Indian Council of Medical Research has developed a "mini oral pill" that contains a very low dose of hormones and will be particularly suitable to Indian users.

Dr. V. Ramalingaswami, director-general of ICMR, said in New Delhi that a recommendation had been made to the Government to organise distribution of the mini-pill at community level through paramedical staff. Given the low nutritional status and low body weight of the average Indian women, the lower dosage of hormones in the mini-pill would be particularly effective for contraception. An added advantage, Dr. Ramalingaswami said, was that the mini-pill had fewer side-effects compared to the pill that was popular in the western countries. He said many hurdles were still in the way of evolving an ideal and all-perfect contraceptive technology, but experience in various parts of the world had been that the required results in family welfare could be achieved with the available technology. High motivation, sound infrastructure and social will were imperative for that.

A two-day international conference, which concluded at ICMR, urged distribution of oral pills through non-clinical sources. In India, these pills are currently distributed only through clinics and under the supervision of a doctor. The conference emphasised that village health workers and para-medical staff should be drafted for the purpose. The conference felt that vasectomy, which was scientifically considered as the simplest, safest and cheapest method of avoiding unwanted pregnancies, must be rehabilitated in India before it is too late.

News from Abroad

Bursaries scheme

Applications are invited for awards under the Royal Geographical Society, Commonwealth Geographical Bureau and Commonwealth Foundation Bursaries Scheme, the purpose of which is to provide a means by which geographers of proven ability (generally postdoctoral) may increase their competence by working with geographers of a Commonwealth country other than their own, where the physical or human environment is peculiarly favourable. The bursaries are to enable such geographers to pursue research, learn techniques, or follow other appropriate forms of study in the field of applied geography.

Applicants are expected to occupy permanent salaried posts to which they will return at the end of the visit, normally six to twelve months, depending on the project to be completed. Study towards higher degrees or diplomas is specifically excluded. Bursaries may provide for travel and contribute towards maintenance at an average rate of £ 100 per month, depending on the applicant's circumstances and living costs in the country to be visited. No specific provisions are made for families.

Detailed regulations governing the scheme may be obtained from the Director, Royal Geographical Society, Kensington Gore, London, SW7 2AR. Completed forms should be returned to arrive before 15th March each year for proposed visit commencing in July of the same year and later, and before 15th September for proposed visits beginning in January of the following year and later.

London varsity overhaul proposed

Four eminent dons have been called in to help reationalise" London's biggest university. Their advice could mean the merger of departments within London University and the possible disappearance of subjects to balance financial cuts. The university's Senate has approved a proposal from the Academic Council to set up four subject review committees under outside chairmen who have been told to submit initial reports by January. Sir Alec Cairncross, Chancellor of Glasgow University and Supernumerary Fellow of St. Antony's College, Oxford, will chair the committee dealing with the future of social studies at the university. Substantial reductions are likely to be made in this area.

Prof. Cruickshank will need to consider recommendations from the University Grants Committee to rationalise London University's study of the classics, German, Italian, Portuguese and Spanish, as well as the history of art and drama.

Literary Association of Nepal

The Literary Association of Nepal was established with the following objectives in view:

(a) Dissemination of Nepalese literature abroad;

(b) Providing of a forum for the study of foreign literature in Nepal;

(c) Promotion of creative writing and research in Nepal.

In order to fulfil the above objectives the Association will organize regular seminars, symposia, talks and the like. There will be an annual Conference where members and invited scholars may present papers. The Association will publish a half-yearly newsletter and a yearly journal.

Any person interested in the objectives of the Association can become its member. There will be four classes of membership : *Life, Regular, Student* and *Corporate*. All life and regular members will comprise the General Body of the Association. The Executive Committee of the Association will be elected by the General Body from among its members. All the members will be invited to participate in the programmes of the Association and will receive all the publications of the Association free of cost. An institution which is a Corporate member of the Association will be invited to send its representative to all the programmes of the Association and will receive five copies of all the publications of the Association.

The subscription rates are as follows:

	Regular (*annual*)	Life	Student (*annual*)	Corporate (*annual*)
Nepal	Rs 50/-	Rs 500/-	Rs 25/-	Rs 1000/-
India & Bhutan	Rs 50/-IC	Rs 500/-IC	Rs 25/-IC	Rs 1000/-IC
Other Countries	$ 10/-	$ 100/-	$ 5/-	$ 200/-

Membership fee for the following year will have to be paid before the end of March of the current year. Further inquiries about the Association and its programmes may please be addressed to Secretary, Literary Association of Nepal, Department of English, Tribhuvan University, Kirtipur, Kathmandu.

Awards & Medals

INSA awards for outstanding work

The Indian National Science Academy has chosen, Professor S. Chowla, Research Professor in the Department of Mathematics, Pennsylvania State University, U.S., for the Srinivasa Ramanujan Medal for 1982 in recognition of his contributions to number theory. The Srinivasa Ramanujan Medal is one of the subject-wise medals of the Academy awarded once in three years for outstanding contributions in the disciplines of physical sciences.

The Shanti Swarup Bhatnagar Medal, 1982 will be awarded to Prof. T.R. Anantharaman, Professor of Metallurgy, Banaras Hindu University, for his contributions to physical metallurgy, especially in metallic glasses and similar areas.

The Silver Jubilee Commemoration Medal, 1982, goes to Dr V.S. Mathur, Senior Scientist, Indian Agricultural Research Institute, New Delhi, for his contributions in the field of agriculture with special reference to improvement of wheat varieties with high yield potential and resistance to diseases.

For the Professor T.R. Seshadri 70th Birthday Commemoration Medal 1982, Dr. Sukh Dev, FNA, Director, Malti-Chem Research Centre, Baroda has been chosen. This medal is founded from an endowment made by the students of Prof. Seshadri.

The Vishwakarma Medal 1982 will go to Dr. Nityanand, Director, Central Drug Research Institute, Lucknow, for his contributions to the development of indigenous pharmaceutical industry. The medal is awarded every three years from the income of the fund placed at the disposal of the Academy by Dr P.B. Sarkar to one whose discovery or invention has led to the start of a new industry in India or to significant improvement of an existing process resulting in a cheaper or better product.

SPORTS

Asiad arrangements being finalised

Delhi will be hosting the IX Asian Games from November 19 to December 4, 1982. Competitions will be held in 21 games and 19 of these will be staged in India's capital. The remaining 2 games i.e. Yachting and Rowing, will be held in Bombay and Khadakvasala (Pune), respectively, owing to lack of adequate facilities in Delhi. In addition, Kabbadi (India) and Sepak Takraw (Malaysia) will be staged as demonstration games. Every Asiad has been unique in its own way. Asiad-82 will be unique in more ways than one. The Delhi Games will include the largest number of disciplines held in any Asiad, and competitions in 4 sports i.e. Equestrian, Golf, Handball and Rowing, will be held for the first time in the history of the Asian Games. Seventeen different stadia are being prepared in Delhi, five of which will be specially constructed for the Asian Games. The remaining venues are also being renovated extensively to bring them upto the prescribed international standards for holding world-class competitions. Construction work on all these projects is progressing at a very rapid pace, and by June 1982', all these sports venues will be completely ready for the Games. This will allow sufficient time for the testing of all the facilities in the stadia, before the commencement of Asiad '82.

The 65 acre Asian Games Village Complex, at Siri Fort Road is being constructed at an estimated cost of about Rs. 18.54 crores (US $ 21.80 million). It will have 703 flats of ten different categories and the plinth-area of each unit will vary from 96 sq. m. to 146 sq. m. It will accommodate about 5.000 competitiors and officials. A special feature of the planning of the houses is that high density has been achieved with low rise buildings. Of the flats, thirty per cent are of duplex type with each such unit having its own independent enclosed private garden area. Most of the bedrooms of various houses have independent open terraces. The houses will be accessible by a pedestrian path, as well as by vehicular traffic. Besides living accommodation, the complex will have a practice area for wrestlers, weightlifters and boxers. It will also have a sauna bath. An athletic track for warming up and separate footbal and hockey fields and two tennis courts are also being provided in the vicinity.

(*Continued from page 644*)

SC/ST) in the shape of crossed I.P.O's payable to registrar Bhagalpur University, Bhagalpur-812007 must reach the undersigned by 4 P.M. on or before **30th November, 1981.**

THE APPLICATION FORMS can be had from the office of the Registrar, Bhagalpur University on payment of Rs. 2/- in cash at the counter of **Rs. 5/-** for sending the same by post on self addressed envelope (23 cm x 10 cm) in the shape of crossed I.P.O. superscribed on the envelope "APPLICATION FOR THE POST————". Money order/Cheque/Bank draft will not be accepted.

The applicant while applying for the post must mention on the Top of the envelope advertisement number and the name of the Post applied for in BLOCK LETTERS.

CANVASSING IN ANY FORM WILL BE TREATED AS A DISQUALIFICATION

No T.A./C.A. will be admissible for attending the interview, if called for.

R.S. Singh
REGISTRAR

News from UGC

New UGC policy on grants to colleges

The University Grants Commission during the Sixth Plan will set up a new college only in an exceptional case in an educationally backward area where facilities for higher education do not exist. Instead, available resources will be largely utilised to provide adequate level of financial support for the improvement of existing colleges in arts, science and commerce colleges which are mainly responsible for undergraduate teaching. The U.G.C. guidelines say for this purpose an effective machinery will be created at the State level for providing grants-in-aid to such colleges and codes formulated in various States will be reviewed, and revised at regular intervals. The establishment of non-viable colleges with low enrolment and inadequate facilities will also be discouraged.

Teacher Training by Post

(*Continued from page 621*)

It may appear as a very minor point but it ought to be ensured that the trainee will get facilities to despatch back his response sheet. If corrected response sheets are not returned well within time the confidence of the trainee in the programme gets eroded.

It was felt that where more than one person are enrolled in the programme from the same institution, they can discuss the correspondence material amongst themselves and the results are better. This also helps in removing several doubts and clearing the concepts.

The contact programme is to be conducted only by those who have the necessary orientation in the preparation and development of correspondence materials and are also aware of the differences in approach and methodology in the two specific cases: the regular course and the correspondence course.

Areas of emphasis during contact programme are to be very carefully selected. These ought not to appear as being thrust upon the trainees and must have ample relevance for subsequent use by the trainees. They can also suggest modification in the programmes according to their needs.

Skill orientation, actual demonstrations and such other aspects which normally are available at their place of work have to be identified with the help of the trainees themselves and taken up adequately during contact programmes. It is to be noted that new developments in teacher training techniques, like microteaching have taken place in our country during the past one decade. The teachers who come for the contact programmes can also be given orientation in the skills of questioning explaining stimulus variation, re-inforcement and in the use of audio-visual aids or even in the use of hardware as is done in educational technology.

The trainees can provide critical comments on the material already received by them. These can be discussed during contact programmes and subsequently utilised for renewal of the materials.

The timings and duration of the contact programme have to be decided very carefully to ensure maximum participation. Several factors including those other than academic need to be taken note of.

At the conclusion of a contact programme the trainees might suggest topics for new lessons or contact programmes based upon their needs. These along with other aspects help in the renewal of the materials.

The correspondence education programmes have come to stay. With time, we shall have to depend more and more on these both for pre-service and in-service programmes. How far these will be effective, depends upon our capacity to learn from the experiences gained. [Courtesy: *The Hindu*]

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Bakhshi, Harish Chander. Extreme point techniques in optimization problems. University of Delhi.

2. Basu, Amarendranath. Tidal propagation in some rivers of West Bengal. University of Calcutta.

3. Iyengar, T.K.V. Axisymmetric problems in micropolar fluid flow. Kakatiya University.

4. Tandon, Om Prakash. Investigations in general H. function transformations. University of Rajasthan.

Statistics

1. Lachhman Singh. Some contributions to mating designs. Haryana Agricultural University.

Physics

1. Bandyopadhyay, Sanat Kumar. Some aspects of transport properties of metal film. University of Calcutta.

2. Bhoskar, Balaji Trimbakrao. Growth characterization and defect studies on crystals of Zeolite family. Sardar Patel University.

3. Brahmachari, Radhasyam, Studies on some magnetic systems. University of Calcutta.

4. Das, Birendranath, Crystal and molecular structures of some organic compounds by X-ray diffraction method. University of Calcutta.

5. Jolly, Pratibha. Variational functions of the Pade type : A systematic application to the ground state of the helium atom. University of Delhi.

6. Kavishwar, S.S. Luminescence studies of ZnS : Cu : Tm phosphors. Vikram University.

7. Majumdar, Tilokesh. Studies on digital tracking loops. University of Burdwan.

8. Mukhopadhyay, Deb. Energy levels and electron statistics in super lattice and related hetero-structures. University of Calcutta.

9. Parashar, Rama Shanker. Fluctuation effects in superconducting Ge-covered tin films. University of Delhi.

10. Ramachandra Prabhu, Chatta Palli Akiraju. Studies in ultrasonics : Application of law of corresponding states. Osmania University.

11. Raychaudhuri, Diptiman. Some studies on the electronic properties in the quantized inversion layer of a semiconductor. University of Calcutta.

12. Sharma, Surendra Raj. Position annihilation studies in some liquid crystalline materials. University of Delhi.

13. Singh, Alakh Kumar. Gamma ray studies of 207 Bi and 144 Ce isotopes. Magadh University.

14. Tibarewala, Dewaki Nandan, Bioengineering approach to performance evaluation of human lower extremity system. University of Calcutta.

15. Vishvanatham, S. Studies on diffracted field and imaging characteristics of optical systems with triangular and associated apodisation filters. Osmania University.

Chemistry

1. Anand, P.S. Synthesis and modification of organic polymeric compositions for sorption. Saurashtra University.

2. Bajaj, Bhupinder Kaur. Reactions of monobromoacetic acid with salts of transition metals. Punjab Agricultural University.

3. Chatterjee, Sailendra Chandra. Studies on the utilisation of indigenous phosphate rock deposits and phosphorus management of Indian soils. I.S.M., Dhanbad.

4. Chattopadhyay, Nilmadhab. Charge transfer in the transition state. University of Calcutta.

5. Garg, Gyan Prakash. Chemical investigation of Pongamia glabra and Elaodendron glaucum. University of Delhi.

6. Ghodgaonkar, Shishir Kumar. Kinetic study of the oxidation of some organic compounds Ce (IV) ion. Vikram University.

7. Ghoshal, Amalendu. Kinetics and mechanism of substitution of chloride ion from Cis and Trans dichlorobis (Eltyhenediamine) cobalt (III) ion by benzoic acid and substituted benzoic acid in ethanol water mixture. University of Burdwan.

8. Halde, Umakant Kashinathrao. Reactions of cytochrome P-450 oxidase. Marathwada University.

9. Katale, Shreekant Pandurang. Anion exchange selectivity in mixed solvent medium (DMF-water). Karnatak University.

10. Konar, Chandra. Study of the chemical constituents of the natural products used in Ayurvedic Medicine. University of Calcutta.

11. Lakshmi Narayana, M. Kinetics of anodic oxidation of zirconium and zircaloy-2 in suitable electrolytes. Osmania University.

12. Mandal, Prabir Kumar. Studies on gum polysacharides. University of Calcutta.

13. Mathur, Suraj Prakash. Studies of metal chelates of nitrogen and sulphur containing ligands. University of Rajasthan.

14. Nasima Banu. Phytochemical studies on Indian medicinal plants. University of Calcutta.

15. Panda, Markandeswar. Mechanistic studies of oxidation processes. Berhampur University.

16. Panda, Radhasyam. Structure reactivity in some redox processes : A kinetic and mechanistic study. Berhampur University.

17. Roy, Samir Kumar, Studies on the electro-chemical properties of mineral solution interface. Visva-Bharati.

18. Sharma, Shiv Narayan. Synthesis of some physiologically active heterocyclic compounds. Vikram University.

19. Siddhanta, Arupkumar. Studies on heterocycles and organometallic compounds. University of Calcutta.

20. Tewari, Sheela. A comparative study of the complexes of the blue perchromate and Cr (III) with some amines, picolines, thiourea and hydroxamic acids. Awadhesh Pratap Singh University.

Earth Sciences

1. Chattopadhyay, Balaram. Nature and origin of Arkasani granophyers, Bihar, India with special reference to those of the western part of the Singhbhum Shear Zone. University of Calcutta.

2. Mallik, Tapaskumar. Recent sediments from some selected offshore areas of the Indian subcontinent and Lakshadweep with particular emphasis on mineral distribution patterns, mineral resources and their exploration. *D. Sc.* University of Calcutta.

3. Ray, Sibsadhan. Structure and stratigraphy of the "Rangit Window" South Sikkim, Eastern Himalaya, India. University of Calcutta.

4. Sharma, D.S. Geology of the precambrian radioactive mineral deposits, Udaipur District, Rajasthan. University of Rajasthan.

5. Sitaram, M. V. D. Homogenization of earthquake magnitudes based on the vertical component short period p wave data. I.S.M., Dhanbad.

Engineering & Technology

1. Agarwal, Ram Autar. Effect of surface topography on contact behaviour of mating surfaces. University of Burdwan.

2. Majumdar, Sekhar. Flame stabilization by opposed jet. University of Burdwan.

3. Mony, G.S. Permeability studies in gravel packing. I.S.M., Dhanbad.

BIOLOGICAL SCIENCES

Anthropology

1. Tara Devi, S. Biochemical genetics and mental retardation : A study of hemoglobins, Australia antigen, the enzymes pseudocholinesterase and glucose-6-phosphate dehydrogenase. University of Delhi.

2. Vijayalakshmi, E. Immunogenetic studies in human infertility. Osmania University.

Biochemistry

1. Avtar Singh. Effect of homogenization on solvation, pH and heat coagulation time of casein micelles. Punjab Agricultural University.

2. Das, Siddhartha. Studies on the effect of different benzodiazepines and imipramine on foetal brain. University of Calcutta.

3. Datta, Rita. Studies on the chemical and biochemical properties of sunflower seed oil grown in West Bengal. University of Calcutta.

4. Dube, Dipak Kumar. Studies on eucarytic DNA Polymerases with special reference to the fidelity of DNA synthesis. *D.Sc.* University of Calcutta.

5. Kusari, Jyotirmay. Biochemical studies on the developing placental and foetal tissues. University of Calcutta.

6. Majumdar, Dipti. Studies on certain aspects of fingerprinting foods. University of Calcutta.

Botany

1. Chattopadhyay, Asokkumar. Studies on chromosome structure and behaviour in different plant genera as an aid in phylogeny. *D.Sc.* University of Calcutta.

2. Ghosh, Ila. Tissue culture and macromolecular contents in cultured plant cells (normal and diseased) and chromosome studies in some members of Verbenaceae. University of Calcutta.

3. Misra, Binod Bihari. Nitrate reductase activity in rice seedlings. Berhampur University.

4. Peer, Maharaj Krishan. A study of the susceptibility of nucleus, chromosomes and their differential segments to physical and chemical agents. University of Calcutta.

5. Rafia Sultana. Karyomorphological and mutagenic studies in Foeniculum vulgare L. Osmania University.

6. Raju, Vatsavaya S. Leaf architectures. I as an aid to the systematic of the order euphorbiales. Nagarjuna University.

7. Sanyal, Manisha. Pharmacognosy, dedifferentiation and redifferentiation of some Meliaceae tissues. University of Calcutta.

8. Sukhdev, Parvataneni. Studies of the cytogenetic effects of gamma rays and some chemical mutagens in pearl millet, Pennisetum americanum Leeke. Andhra University.

9. Thulasi Reddy, Rama. Investigations on the microbial ecology of soil litter and air habitats of Mahaboobnagar Distt., A.P., India. Osmania University.

10. Wadia, K. Diwakar Rama. Survey and patho-physiological studies of some fruit rot fungi. Osmania University.

Zoology

1. Anil Kumar, G. Reproductive physiology of female crustacea. University of Calicut.

2. Bandyopadhyay, Ranajit. Relation of testes and accessories with the other endocrine glands in the sexual cycle of a pest bird, Psittacule krameri Boialis. University of Burdwan.

3. Behera, Hemendranath. Studies on collagen in alloxan diabetic Swiss mice. Berhampur University,

4. Chatterjee, Amalendu. Studies on the control of some plant parasitic nematodes by plant substances. Visva-Bharati.

5. Dave, H.B. Some aspects of culture and pollution studies of eggs, larvae and spats of edible oysters. Saurashtra University.

6. Harish, Kumar. Sexual behaviour and communication in the leafhopper, Amrasca devastans (Distant) (Homoptera: Auchenorrhyncha, Cicadellidae). University of Delhi.

7. Joy, V.C. Studies on the effect of some herbicides on soil microarthopods. Visva-Bharati.

8. Mobarak, Abdel Kadis Hamza Ibrahim. Studies on certain aspects of biology and reproduction of genus Notopterus. University of Calcutta.

9. Mukherjee, Dilip Kumar. Gonadal response on female Channa punctatus (Bloch) to the homologous and heterologous gonadotropins and other hormones. Visva-Bharati.

10. Prasad, N.L.N.S. Home range, dispersal and movement of blackbuck (Antilope cervicapra L.) population in relation to seasonal change in Mudmal and environs. Osmania University.

11. Priyamvada Devi, A. Studies on the toxicity of endosulfan to some freshwater fish, with special reference to certain physiological changes induced in Channa punctatas (Bloch). Nagarjuna University.

12. Ramesh Babu, G. An attempt towards elucidation of molluscicidal effects of copper sulphate. Sri Venkateswara University.

13. Ray, Ramlal. Nematode parasites of verterbrates inhabiting in different bodies of water in Eastern India. University of Burdwan.

14. Sangvikar, Pratibha Purushottam Rao. Physiology of moulting in fresh water prawn, Caridina Rajadhari. Marathwada University.

15. Santhi, S. Studies on the ethology of the Indian field mouse, Mus booduga booduga. University of Kerala.

16. Sanyal, Asok Kanti. Studies on the taxonomy and ecology of soil dwelling oribatid mites in the Gangetic Delta, 24-Parganas, West Bengal. University of Calcutta.

17. Sen, Prasanta. Effects of pesticides and industrial chemicals on some air-breathing teleost-fields and their food organisms. University of Calcutta.

18. Shanta, K. some aspects of physiology of digestion in fish. Osmania University.

19. Vipradas, Kanchan Chandrakant. Respiratory physiology of the snail, Lymnaea auricularia. Marathwada University.

20. Yellamma, K. Anatomy and physiology of the 7th abdominal ganglion of the scorpion. Heterometrus fulvipes (C.Koch) and their relation to neuromuscular innervation of the stinger. Sri Venkateswara University.

Medical Science

1. Bhattacharyya, Phalguni. Epidemiological study of the relative effect of oral, IUCD and conventional contraceptives with their repercussion on the reproductive biology. University of Calcutta.

2. Chakraborti, Surajit. Studies on immune status in malignant disorders with special reference to lymphomas, breast cancer and cervical cancer. University of Calcutta.

3. Ray, Somnath. Effects of clomiphene citrate and centchroman on the physiology of reproduction. *D.Sc.* University of Calcutta.

4 Som, Nirmalchandra. Studies on the safety of microbial insecticide Bacillus thuringiensis and an isolated insect pathogen under certain environmental conditions. University of Calcutta.

Agriculture

1. Ajit Singh. Diallel analysis in groundnut (Arachis hypogaea L.) Punjab Agricultural University.

2. Ansingkar, Anil Shrikrashanrao. Comparative study of breeding procedures for improvement of yield and yield contributing characters in desi cotton, G. arboreum L. Marathwada Agricultural University.

3. Bhardwaj, Satya Vrat. Virus-vector-host relationship of urd bean leaf crinkle virus. Himachal Pradesh Krishi Vishva Vidyalaya.

4. Ghatge, Rajaram Dnyandev. Genic relationship of characters in chickpea, Cicer arietinum. Mahatma Phule Agricultural University.

5. Jagjit Singh. Stochastic analysis of groundwater basins. Punjab Agricultural University.

6. Mehar Singh. Studies on a mosaic disease of Radish (Raphaous sativus L) in Himachal Pradesh. Himachal Pradesh Krishi Vishwavidyalaya.

7. Prem Datt. Biology and behaviour of pink bollworm of cotton in Hissar conditions. Haryana Agricultural University.

8. Zora Singh, Effects of plant regulators on cotton (Gossypium hirsutum). Punjab Agricultural University.

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Advertisement No. 9/81

Applications in the prescribed form together with the registration fee of **Rs. 5/-** through M.O./I.P:O./Challan 'A' are invited for the following posts in the University service so as to reach the undersigned on or before **30-11-1981** :—

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2. Reader in Genetics	Rs. 1200-1900
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Age

Professor	Not above (50) years.
Reader	Not above (40) years.
Lecturer	Not above (35) years.

Note

(i) Age limit does not apply to the employees of this University.
(ii) Age relaxation can be considered in deserving cases.
(iii) Relaxation in age to the extent of five years may be granted to candidates belonging to SCs, STs and BCs, respectively in the case of Lecturers only.

14%, 4% and 25% reservations are made for SCs, STs and BCs, respectively in case of Lecturers only.

Application forms can be had from the Director, Dept. of Publications and University Press, O.U , Hyderabad-7, on payment of **Rs. 4.50** in person or by money order or by a postal order UNCROSSED made payable to the Director, and by sending a self-addressed envelope (11½ x 26½ cms.) duly stamped for ordinary or registered post.

Full particulars can be obtained on requisition from the Director, Osmania University Press, free of cost, by sending a self-addressed stamped envelope.

B. Ramachandra Reddy
REGISTRAR

JAWAHARLAL NEHRU UNIVERSITY
NEW MEHRAULI ROAD
NEW DELHI-110067

Advt, No. Aca. III/9/81

Applications are invited for the post of Research Associate in the Centre of East Asian Studies of the School of International Studies of the University for a period of three years, extendable for another term not exceeding two years.

Essential Qualifications

1) A first or high second class Master's degree in History/Political Science/Economics/Sociology.

2) A Doctor's degree or comparable research experience in the field of contemporary East Asian Affairs.

Desirable Qualifications

1) Knowledge of Chinese/Japanese.

Value

The Research Associateship will be awarded in any of the following three categories, and carries the following fixed consolidated emoluments and no other allowances:

a) Category 'A'	Rs 1100 per month
b) Category 'B'	Rs 1300 per month
c) Category 'C'	Rs 1500 per month

A contingency grant of Rs 4000 per annum will be admissible to Research Associate.

10 per cent of the Research Associateships are reserved for candidates belonging to Scheduled Caste and Scheduled Tribe provided they fulfil qualifications laid down for the award. In case qualified candidates are not available, Research Associateship may be treated as unreserved.

Persons already in employment should route their applications through proper channel.

Second class (mail) rail fare (both ways) will be paid to candidates invited to appear for interview from outstation by the shortest route.

Applications on the prescribed form, obtainable free of cost from the Section Officer (Academic Branch-III) of the University by sending him a self-addressed and stamped envelope (**affixing Postage stamps worth Rs 2.85**) of 23 cm x 10 cm. size should reach the Deputy Registrar (Academic) Jawaharlal Nehru University, New Mehrauli Road, New Delhi-67, latest by **30th November, 1981**.

TAMIL UNIVERSITY
THANJAVUR
NOTIFICATION

The Tamil University, Thanjavur Offers the following fellowships for periods ranging from three to twelve months for category **one** and two years in the first instance for category **two** and **three**.

1. Special Research Fellowship at Rs 2,500 p.m.	...Total awards 5
2. Senior Research Fellowship at Rs 900 p.m.	...Total awards 10
3. Junior Research Fellowship at Rs 600 p.m.	...Totnl awards 40

Bio-data with plan of work is required for the award of the three categories of fellowships.

For category one researchers of eminence need apply. There is no age restriction excepting that the Scholar should be healthy and will be required to reside in Thanjavur.

For category two and three the minimum qualification shall be a Ph.D in any one of the following subjects: Sculpture, Painting, Music, Drama, Editing of palm leaf/Rare paper manuscripts, Study of migrant Tamils, Tamil Literature, Criticism, Translation, Linguistics, Siddha Medicine, Ancient Sciences, Ancient Industries and Architecture plus publications in journals of repute.

For category three candidates with not less than First Class both in M.A. and M. Phil will be considered if candidates with Ph.D are not available.

Candidates should not be more than 35 years at the time of application.

The Tamil University reserves the right to offer the Special Research Fellowships to Scholars of eminence, if suitable candidates are not available.

The last date for receiving the biodata and enclosures by the Registrar, Tamil University, Thanjavur, India is **25-11-81**.

S. Ramachandran
REGISTRAR

THE UNIVERSITY OF BURDWAN
RAJBATI : BURDWAN
WEST BENGAL

Advertisement No. 8/81-82
Dated, 3 November, 1981

Applications are invited for the following posts:—

1. Placement & Students' Welfare Officer	...One post
2. Assistant Registrar	...One post
3. Accounts Officer	..One post
4. Trust Officer	...One post

Scale of pay

For (1): Rs. 1200-50-1300-60-1900/-, and for (2), (3) and (4): Rs. 700-40-1100-50-1600/-, Dearness and other allowances and pensionary benefits will be admissible according to the rules of the University.

Educational Qualifications & Experience

For the post of Placement & Students' Welfare Officer

(a) Essential

(i) Uniformly good academic record with a B+Master's Degree or its equivalent.
(ii) At least 10 years' experience in a responsible administrative/academic position in a University or in a College or in an Institute of Higher Learning or Government or other academic bodies.
(iii) Age not less than 35 years. Relaxable in case of exceptionally qualified candidates.

(b) Desirable

(i) A Doctorate Degree or published papers of high standard.

Or

(ii) Should have experience of liaison work and interaction with Industrial, Government or Financial institutions for placement of students. Should also, have the ability to organise welfare activities of students.

For the post of Assistant Registrar :

(a) **Essential**

(i) Uniformly good academic record with a B—Master's Degree or its equivalent.

(ii) At least 10 years' experience in a Supervisory capacity in a University or a Research Institute or a Government/Quasi Government Organisation.

(iii) Age not below 30 years. Relaxable in case of exceptionally qualified candidate.

(b) **Desirable**

A degree in Business Management or Law or Statistics or Planning.

Note: Qualification of Master's degree may be relaxed in the case of candidates possessing uniformly good academic record with at least 7 years' experience as Superintendent or in equivalent post in a University. In that case, the performance records of such candidates for 7 years will also be examined.

For the post of Accounts Officer :

(a) **Essential**

(i) Uniformly good academic record with a B+Master's Degree or its equivalent.

(ii) At least 5 years' experience involving supervision, control, planning and management of accounts and audit.

Or

Preparation of budget in a Government/Quasi Government organisation or University/Institute of Higher Learning.

(iii) Age not below 30 years. Relaxable in the case of exceptionally qualified candidates.

(b) **Desirable**

Membership of Institute of Cost and Chartered Accountants of India or a degree or Diploma from a recognised Institute of Management or passed SAS examination. The requirement of Master Degree will be waived in the case of candidate with good academic record of at least 10 years' working experience in senior position in any University or Institute of Higher Learning involving budgeting, maintenance of Accounts and Audit.

For the post of Trust Officer :

(a) **Essential**

(i) A degree in Law or Management.

(ii) At least 5 years' experience in dealing with matters for upkeeping of a estate including Management of properties, control of Personnel, etc.

(iii) Age not below 30 years. Relaxable in the case of exceptionally qualified candidates.

(b) **Desirable**

Experience in trust management, management of endowments or experience in inventory control or as legal consultant to a large scale industrial concern.

The choice of the Selection Committee may not necessarily be confined to those who apply formally.

For application form and other information apply to the Registrar with a self-addressed stamped (0'50p.) envelope (9" x 4").

Last date for submission of application with requisite fee of **Rs. 5/-** is **December 10, 1981.**

A.K. Chaudhuri
REGISTRAR

BHAGALPUR UNIVERSITY

BHAGALPUR-812007

Advertisement Notice

Applications on prescribed form are invited from Indian Citizens for the following posts under the Bhagalpur University Service in the scale of pay as mentioned below plus other allowance admissible as per rule of the Bhagalpur University :-

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,, 70/81 One permanent post of University Prof. of Pol. Science.
,, 71/81 One permanent post of University Prof. of Economics.
,, 72/81 One permanent post of University Prof. of Mathematics.
,, 73/81 One permanent post of University Prof. in Bengali.
,, 74/81 One permanent post of Reader in Hindi.
,, 75/81 One permanent post of Reader in English.
,, 76/81 One permanent post of Reader in Pol. Science.
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SCALE OF PAY MINIMUM QUALIFICATIONS FOR THE POST OF UNIVERSITY PROFESSOR

Scale of pay : Rs. 1500-60-1800-100-2000-125-2500/-

MINIMUM QUALIFICATION

Teachers of repute possessing high Academic Qualifications, who has already distinguished himself in the subject concerned and who possess a doctorate degree and has at least ten years post-graduate teaching experience and also considerable experience of successful guidance of research work.

SCALE OF PAY & MINIMUM QUALIFICATIONS FOR THE POST OF READER

Scale of pay : Rs. 1200-50-1300-60-1900.

MINIMUM QUALIFICATION

1. A first or High Second class Master's degree or equivalent degree of a foreign University in the subject concerned, with consistently good academic record, followed by a Doctorate degree and;

2. With at least 5 years teaching experience in postgraduate classes or 7 years teaching experience in Honours and Post-graduate classes tahen together or 12 years teaching experience in degree classes.

Provided that the requirement of a first or High Second class Master's degree for appointment to the post of Reader/Professor may be relaxed to bare second class in the case of a teacher who, apart from obtained his own Ph.D. degree has successfully guided research work leading to the award of Doctorate Degree or has published considerable research work in standard journals beyond what he did for the Doctorate Degree and has put in at least eight years of teaching experience in the post graduate classes or ten years of teaching experience in the Honours, or Honours and Post-graduate classes taken together or fifteen years of teaching experience in degree classes.

RESERVATION

Some posts are reserved for the candidates belonging to SC/ST/Backward classes/Women, and Economically backward class in the manner prescribed in the Statutes. In case no such suitable candidate is found the post will be converted into general post.

NOTE : (a) The candidates of the aforesaid categories while applying for the post must submit a caste crrtificate duly granted by D.M./ Sub-Divisional Officer or any other Gazetted Officer duly authorised by the D. M. alongwith their application.

(b) Candidates belonging to Economically backward classes and backward classes while applying for the post must submit an affidavit to the effect that they do not pay Income Tax or Agricultural Income Tax. This facilities of reservation is admissible to only such families who on the basis of their annual Income are examined from paying Income Tax. Severe action under law would be taken against those who submit wrong affidavits.

AGE LIMIT

No minimum age for any post has been prescribed but the age of superannuation is 60 years.

SEPARATE APPLICATION for each post accompanied with attested copies of Marks sheets, certificates and degrees from Matriculation onwards with a fee of **Rs. 10/-** (**Rs. 2/50** for

(*Continued on page 638*)

ANDHRA UNIVERSITY

Waltair

Advertisement No. 2/81

Applications in the prescribed form are invited for the following posts so as to reach the Registrar, Andhra University, Waltair on or before **2 12.1981**. Each application shall be accompanied by a Bank challan receipt of Rs. 10/- (Rupees ten only) remitting the amount in the State Bank of India to the credit of Andhra University General Account (Ordinary) towards the Registration fee for the application. Postal orders will not be accepted. Candidates residing outside Andhra Pradesh should remit the registration fee by M O. or Demand Draft in favour of Registrar, Andhra University and send the M.O. receipt alongwith the application.

I. Teaching Staff

Department/Subject		Professor	Reader	Lecturer
1. Law		2	—	—
2. Education		1	—	—
3. Civil Engineering		—	1+2*	—
4. Geo-Engg. & Resource Development		—	1	—
5. Engg. Mathematics		1	1*	1*
6. Mechanical Engg./ Industrial Engg.		—	1	—
7. Engg. Physics		1*	—	—
8. Mechanical Engg.		—	—	3
9. Electrical Engg.		2*	1+1*	2
10. Marine Engg./ Naval Architecture		1	—	—
11. Rural Development	At AUPG Extension Centre, Srikakulam.	—	1	—
12. Economics		—	1	—
13. Physics	At AUPG Extension Centre, Nuzvid	—	1*	—
14. App. Mathematics		—	1*	—
15. Chemistry		—	—	1*

*Temporary.

II. Posts in School of Correspondence Courses

Name of the Post	Subject	No. of posts
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3. -do-	Economics	1
4. Asst. Director	Social Studies (B.Ed. Courses)	1
5. -do-	Sciences/Mathematics (B.Ed. Courses)	1

Scale of Pay

Professor: Rs. 1500-60-1800-100-2000-125/2-2500
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Lecturer: Rs. 700-40-1100.50-1600
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The rule of reservation for S.C., S.T. and B.C. candidates is applicable for the posts of Lecturers and Assistant Directors.

The details of qualifications prescribed in respect of the above posts including the particulars and precise branch of specialisation which is needed and also the preferential qualifications considered desirable will be furnished alongwith the application form.

Requisition for the application forms may be made to Sri P. Hanumantha Rao, Joint Registrar, Andhra University, Waltair accompanied by a self addressed and stamped envelope and a State Bank of India challan for one rupee. Candidates residing outside Andhra Pradesh may, however, obtain the application form by remitting one rupee by M.O. or Demand Draft in favour of the Registrar, Andhra University, towards the cost of application form and send the M.O. receipt alongwith the requisition for application form. Postal orders will not be accepted. The University reserves the right to fill or not to fill all or any of the posts. The cover containing the applications should be superscribed as "APPLICATION FOR APPOINTMENT TO THE POST OF————. Persons already in service should send their applications through proper channel. Applications received after 5-00 P.M. on the due date will not be entertained.

M. Gopalakrishna Reddy
REGISTRAR

ANNAMALAI UNIVERSITY

Annamalainagar-608002

Applications are invited for the following posts for the Indian Bank Chair in Agricultural Economics, in the form obtainable on paymeht of Rs. 5/- to the Registrar, Annamalai University, Annamalainagar 608 002 by Cash/Money Order/Postal Order (not refundable). Completed application forms (with five copies) should **reach the Registrar on or before 5-12-1981.**

1. PROFESSOR AND DIRECTOR (ONE POST)

Educational Qualification

1. M.Sc. (Ag.) degree in Agricultural Economics with First Class and
2. Ph.D. Degree in Agricultural Economics.

Experience

1. About 10 years experience of teaching and research in the field of Agricultural Economics in an University or Institution of repute in India or abroad.
2. Experience of formulating and implementing project research preferably in the area of rural financing or farm management and allied subjects like Dairy farming, Poultry, sheep rearing, etc.

Age limit

Preferably between 45 and 55 years.

Salary

A consolidated salary of Rs. 2,000/- p.m. plus fringe benefits.

He will be eligible to draw T.A./D.A. for tour in connection with field work.

General

Applicants who have experience in the above fields and who are at present working in projects in organisations like the Reserve Bank, Agricultural Refinance Corporation and Agricultural Universities who have proven merit will be given preference.

The above qualifications may be relaxed in the case of eminent persons who have comparable experience of research and project implementation in the fields referred above.

Appointment will be made for 3 years in the first instance. Persons who have recently retired may also apply.

2. RESEARCH ASSOCIATE (TWO POSTS)

Educational Qualification

M.A. in Economics with atleast a high Second Class,

OR

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(b) Some experience of field work in the collection and processing of data pertaining to agricultural problems.

Age limit

Preferably between 25 and 35 years.

Salary

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E. Thangavelu,
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REGISTRAR

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SARDAR KRISHINAGAR

Advt. No. 8/81

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4.	Plant Pathology	2	4
5.	Entomology	2	—
6.	Physiology	2	2
7.	Agril. Economics	3	—
8.	Agril. Engineering	3	2
9.	Meteorology	—	1
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Application forms and other details regarding qualifications and experience can be had from the Registrar, Gujarat Agricultural University, Sardar Krishinagar-385506, Dantiwada, Dist. Banaskantha on cash payment of **Rs. 2/-** or by sending crossed Indian Postal Order of equal amount issued in favour of Comptroller, Gujarat Agricultural University, Sardar Krishinagar alongwith the self-addressed envelope (23 cm x 11 cm) affixed with **95 paise** postage stamps. The last date for obtaining the application forms is **21.11.81.**

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Last date for receiving the applications is **30.11.81.**

M.P. Vaishnav
REGISTRAR

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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH DECEMBER 1, 1981

Dr. (Mrs.) Madhuri R. Shah, Chairman, University Grants Commission, receiving the degree of Doctor of Literature (Honoris Causa) from the Chancellor at the convocation of the University of Kashmir.

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Editor : ANJNI KUMAR

On the Poverty of Academies

B. D. Nag Chaudhuri*

Almost a quarter of a century ago a middle aged maverick at the National Physical Laboratory (NPL) in Delhi played around with solar concentrators—solar cookers as they were then called. A group of distinguished physicists, which included Professor Blackett (later Lord Blackett, President of the Royal Society of London), were asked to review the work of the NPL. Their report condemned the work on solar cookers as ill conceived and badly executed. Promptly following the report, the NPL dropped the work. None of the Indian physicists in the reviewing group supported the work as conceptually sound and thus contributed to its demise. Blackett was too high in the Academic pecking order and an Englishman to boot, so nobody dared to contradict Blackett's views. Shortly before Blackett's death, I met him in London and invited him to tea. We talked of many things, one of them, the National Physical Laboratory (NPL). Blackett, probably had minor feelings of guilt. He confessed that the solar concentrator research was conceptually, sound, perhaps in some ways in advance of the times, but the engineering approach was faulty, probably because the technological background of the man was weak. This had led him (Blackett) to a faulty view. However his telling remark was "why didn't anybody at the NPL or in the review group protest against my views?" When I suggested that it might have been because they were overawed by him, he would not accept it. He suspected that they were being polite with guests, as Indians usually were. It was only about two years ago that solar energy work was restarted at NPL. By that time solar energy research had become fashionable internationally following oil price increases and awareness of depleting non-renewable resources of energy. But India and the NPL had missed an opportunity to lead in an important research area.

The lack of confidence is an Indian social and governmental phenomenon that afflicts our ethos. The University Grants Commission, the department of atomic energy and other such agencies of government, the Universities and autonomous institutions are all unprepared to take risks with ideas, people or projects. Safe projects, safe researches are easily accepted for funding by all agencies. UGC considers it safe to give grants for buildings and small doles to the libraries or to new faculty positions. It hardly ever tries to lever the Universities to get into challenging areas by appropriate funding policies. We have talked about the need of academic mobility till the cows come home. There is yet hardly any inter-university academic exchange within the country. There is more exchange between foreign and Indian universities—it is fashionable—besides it brings in a little more money to a few who go abroad. Academic exchange between the agencies and the universities is non-existent or minuscule. The attitudes of patronage of the government scientific agencies further hinder such exchanges. Only agricultural research shows a slightly healthier order of academic exchanges.

**Former Vice-Chancellor of Jawaharlal Nehru University.*

Unfortunately, they have walled themselves into a separate system.

Students are important in all academies. They provide renewal and itellectual continuity. Unfortunately, they have become important in India for wrong reasons, because they can threaten to go on strike, usually for all sorts of wrong reasons; for getting more marks, for delaying examinations, for political reasons; even for decreasing bus and train fares. There is hardly any feeling or movement for better academic life, introduction of more skill components in the educational process, part time or holiday work opportunity for a little earning and training—nothing that will go towards some self-improvement. The teachers, fortunately, do not go on strike often, but when they do it is for the usual trade union purpose of pay hikes and never for self-improvement opportunities.

Security is important in all our lives. It is needed—but in moderation. Excess of security induces sloth, weakness motivation to do difficult but worthwhile things. After all, most worthwhile objectives involve some risk taking, intellectual risks, professional risks, social and financial risks to achieve them. But University education, unfortunately in India, is not a training in risk-taking but a culmination of trying to achieve security by getting first a degree and next a job. Hence, students do not want education, they want a degree—a passport to a job. Neither governments, nor industries, nor certainly the universities have tried to put across by deed, example and advice, the idea that University education has purposes other than giving a scrap of paper, and that these purposes are national, social and economic. Security afflicts the teachers even more. Permanence, grades, promotions are terminology reflecting their atavistic need for security. On the other hand, there is no process of review, discrimination or encouragement. Universities are self governing systems. Any self-governing system needs a feedback to determine how and where it is going. Both faculty and authority are equally adamant in discouraging development of a cybernetic system of internal review and evaluation of system performance, its utility and efficiency. Without this all reform and change can, at best, be inspired guess-work—usually much less—a justification to leave things as they are. The Radhakrishnan and Kothari Commissions produced excellent essays of good intentions. Their impact on changing the Universities has been minimal. The fads, fashions and fancies of the European and American intellectual world are attractive coinage but have negligible purchasing power. The power of the degree has increased as the value of learning and skills has increased. A C.V. Raman today would not get a job in an Indian University or a government agency, because he had no Ph.D. degree and had an indifferent M.A. At the time of his appointment as professor in the Calcutta University he was an official of the Indian audit and accounts service. Nor would System Bose or Krishnan get jobs easily today. They had no Ph.D. when they started their academic careers. Satyen Bose's subsequent doctor's degree was honoris causa. The combination of desire for excessive security, lack of awareness of the world around them and academic immobility are drawing our universities into the quicksands of intellectual oblivion.

Like other areas of intellectual activity, science in our universities is in poor shape. Research is being carried out, some of it worthwhile but rarely exciting. In comparison with scientific activities of the agencies the volume of university research is creditable-acounting for about half the total research carried out. Pramana, a research journal in the physical sciences, has published an analysis this year which puts the volume of university research in an attractive light. Even more attractive is the expenditure per research paper in the universities which is about one eighth of what it is in the government scientific agencies. While too much need not be deduced from these observations, the point is that University research is cheaper, usually more routine, but occassionally more innovative than the scientific researches in the government agencies. Productivity per scientist, including all categories, seems to be higher or at least equal in the Universities. This may possibly be understandable because of the larger volume of developmental work carried out in the agency establishment. But developmental work too has been low on results. If university science is in bad shape, and undoubtedly it is so, government research and development effort appears no less dismal—geosynchronous satellites notwithstanding. The auto prestigiousness and heavy handedness of research agencies have tended to distort or discourage innovation in their own organisations, in universities, and in industry. India has a numerical strength of scientific and technological manpower which is next only to that of the USA and USSR. India is listed as the tenth industrial nation in the world in UN reports. The World Bank report published earlier this year lists India as the fifteenth from the bottom of the poorest nations on earth having slipped from a position which was around fiftieth from the bottom some ten years ago.

Our vaunted scientific, technological and educational capabilities do not seem to have contributed to the betterment of the lives of our people. Science and technology, whether due to insularity, elitism or bureaucracy, has not been able to penetrate into the lives of our people. Universities have not been guiding beacons to our people, they have become subservient to State and Central Government and quite often to political parties. Universities are no longer trusted institutions. Government research agencies have never been trusted, but that may be attributed to the traditional distrust and fear of government by our people. The increasing poverty of our academics is rooted, basically in the loss of respect and affection that people had for Universities and what they stood for.

[*Courtesy : The A.B. Patrika*]

[illegible] MYSORE

Education, Employment and Development

D. M. Nanjundappa*

The present system of education is criticised as being irrelevant to society and its needs especially judged in the context of the declared objective of planning viz., removal of poverty and unemployment. The blame has to lie at the doors of both universities and at the development departments of the Government. Those in universities work in isolation except for undertaking sporadic or occasional research studies based on the problems facing society. Those in Government, whether at the highest policy making level or in the different development departments, have for too long been under the mesmorising spell that only programmes operators know where the shoe pinches and the academicians/researchers are not able to comprehend the problems of development, especially in the field problems. The result is that the proverbial appellation that a researcher/academician sits in an ivory tower continues to reign in the minds of policy makers and programme operators. The need to understand the relationships and the reactions among the different programmes administered by the Government for realising the cherished goal of removal of poverty and unemployment is not easily understood by the bureaucrats. Only a microscopic minority in the bureaucracy is sensitive to the requirements of research in policy formulation, programmes implementation and solving of problems that require technological solutions. In any case, there is a need to sensitise both the researchers/teachers in universities and the administrators in Government to the common tasks of development and the scientific formulation of programmes and their implementation and evaluation. At present, a hiatus has developed between the development departments and the universities mostly due to the lack of appreciation of the relative roles in the common endeavour of fulfilling the development goals.

To overcome the barriers which now separate development departments from the researchers/the teachers in the universities several possibilities can be envisaged. The more important of these are listed below :

1. Choice of research themes in universities;
2. Exchanges of personnel between universities and government;
3. Spelling out the requirements of planning and development;
4. Modification of the curriculum keeping in view the development problems and needs;
5. Promoting self-employment prospects through courses offered at universities;
6. Developing guidelines for manpower planning in Universities;
7. Offering a package of services for linking with education or training;
8. Relationship between industries and universities;
9. Organisational set-up for establishing better rapport between universities and development departments of government.

Choice of research themes

Generally, a researcher in an university, whether in the area of social sciences or in the natural sciences or technology, selects a problem which in his judgment is likely to make an important contribution to the available knowledge on the subject. The more abstract such a contribution is, greater is likely to be the reputation he expects in the academic world. There is no bias in favour of topics for research. This is partly due to ignorance of policies and partly due to lack of rapport with the development departments which are administering various programmes to raise the subsistence population above the poverty liine. While one cannot deny the significance of theoretical research and the role of a sound theoretical approach to policy formulation, such an approach should be tempered by the desire to solve a development problem. If this can be achieved, research become relevant to society and the research results can also get utilised. It is somewhat unfortunate that while several crores of rupees are spent on research in the different universities and institutions, seldom do we come across satisfaction being expressed in policy formulation circles about research results being used in developing appropriate policies or programmes. The rigidities in the outlook of researchers and bureaucrats are to be equally blamed for such a situation. There seems to be some kind of a conflict between the 'bureaucratic culture' and 'university culture'. It is to be emphasised that there is utmost need and urgency for harmonising these two cultures and evolve a development culture which can form an indispensable part of the qualities of a researcher and an administrator.

To achieve the linkages between education and development, it is necessary for the researchers to come to know what types of problems could be researched into. This is a matter which mostly depends upon the rapport between the development departments and the university departments. Instead of solitary cases being cited here and there where some good results have come out, we should aim at institutionalising this rapport. The development departments should list out the problem areas which could be deposited for research in the universities/research institutions. The research results should also become available quickly. Of course, in the case of Doctoral dissertation, the results may become available after a period of 2 or 3 years. These are areas where long term results could be used in solving the problems of society. There are also areas where immediate correctives are to be applied. Studies into such areas may not require a longer period. They can be completed in say 6 to 12 months or less. In the universities, there must be a general understanding among the researchers about the choice of problem for investigation. A balance should be maintained between those which have a purely theoretical content and broad generalisations and those areas which have immediate problems solving potential. It should not be difficult to maintain such a balance and in order to enable the researchers in universities achieve this objective, the development departments will have to indicate problems areas to them from time to time. Perhaps, one way of achieving this could be that periodic seminars on problems of development and areas of research may be organised by the Government and researchers in universities and administrators in Government should be made to participate in them. We can benefit from inviting these in private sector as well as well-informed people also to participate in such seminars. Problems that can be taken up for research can be identified at such seminars and government/universities can finance studies covering such problems.

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*Vice-Chancellor, Karnatak University, Dharwad.

Exchange of personnel

One way of establishing effective linkage between educational institutions and the development departments of the Government is to provide for exchange of personnel between them. It should be possible for the Government to take those who are working in universities on deputation basis or contract to work in Government to get the required expertise. Similarly senior administrators can be sent to the universities for studying problems in-depth which are agitating their minds and this may be for a period of one or more year. Such exchanges have several advantages. Those in universities will get an insight into how the development programmes are administered and how the policies are framed in the Government which they would not otherwise come to know. When they go back to the universities, they will be in a better position to give a more realistic touch to their courses and also for choosing areas for research. Similarly, those in Government can improve their skills and capabilities especially those requiring special expertise by spending sometime in the universities consulting the specialists. This exchange of personnel appears possible when certain facilities are provided to those who opt out under such an exchange programme. They do not involve much of an expenditure. All that may be required is some reasonable accommodation and transportation facilities which are by no means beyond the finances of the universities or the Government. When compared with the fall out effects of such an exchange, the expenditures which are to be incurred should be considered worthwhile despite the resource constraints.

There is yet another possibility. In the preparation of the area plans like the District Plan or the Block Plan, it should be possible for the Government to involve the researchers/teachers in universities/colleges in the preparation of such plans. There could be some innovations. In fact, in Karnataka Readers/Professors of Economics were taken on deputation to the Planning Department for one full year and after going through a training programme of about 3 months, they prepared perspective plans for all the 19 districts which have been found to be very useful in the formulation of plans in the State at different levels. In fact, efforts were made to see that the Readers/Professors so selected were not even required to move out of their own places of normal residence except for the brief period of training. Those working at District headquarters were associated with the district administration and district planning. They were given a special allowance over and above what they were getting in their respective universities/institutions. The success of such innovations depends upon how neatly and precisely the requirements of the Government are placed before such university personnel and how the latter respond to the adaptations expected of them and display their technical skills.

Spelling out the requirements of planning and development

It is necessary for the development departments to spell out in detail the requirements of planning and development. For instance, now we are talking of Integrated Rural Development and block Plans for achieving full employment. What actually is to be done in preparing a block plan for integrated rural development should be clearly stated. Unfortunately, researchers/academicians in the universities will not be fully aware of the field problems and the inter-departmental relationships in the matter of formulating the programmes or their implementation. The problem consists of not only carrying out surveys to collect basic data; it also encompasses the methods of raising the productivity of the subsistence population and also evolving of policies to bring about development with social justice.

Subsidies are administered by development departments. How exactly these subsidies have to be used in the preparation of the block plans and for tapping institutional finance must be explained to them. Specific problems which require scientific and technological solutions must be listed out. They may relate to agriculture or animal husbandry or tiny industries.

Again, in implementing projects, the latest techniques can be used. For example, PERT can be used for a project both for implementation and for monitoring its progress. What specific projects can be considered for application of PERT should be made known to them. Those who prepare the PERT can also be associated in the implementation process.

Some of the detailed technical exercises required for planning can also be entrusted profitably to universities and research institutions. Such areas where studies can be carried out will have to be delieneated by the Government departments.

Curriculum

It should be possible to include the problems facing development effort in the curriculum of the different degree programmes. On the side of science and technology, the malady remedy approach may be useful and the Government departments have to tell the universities the type of problems encountered which need the support of science and technology in solving them. They could form a part of curriculum in addition to the basic component which is presently found. On the side of social sciences, perhaps, there is still larger scope because of the socio-economic implications of development. The types of programmes which should be included to tackle the problems of the target groups, and the various ramifications of these policies can be covered under the different disciplines. The students should be enabled to understand the basic problems of poverty and the challenges of development planning. It is not an exaggeration to say that there is at present a colossal ignorance and consequently indifference to what goes on in society. One way of sensitising the student community and the teaching faculty to the live issues is to give a development orientation to the curriculum of all the subjects. Here again, as mentioned earlier frequent seminars should be organised bringing together the faculty members in universities and the administrators so that the former can see for themselves what modifications are feasible in the curriculum keeping the development angle in view.

The curriculum also needs modification to supply the required skills for programme formulation and implementation. For example, if a block plan is to be prepared adopting a cluster of villages approach, those who study subjects like economics, sociology or even the science subjects should be familiar with the techniques of block planning and area approach. The institutional set up and the method of financing should be made known to them. To what extent science and technology can solve the problems of the poor especially taking note of the programmes which are to be drawn up would determine the scope for the scientists to make their contributions to the planning process. Irrespective of the discipline in which the faculty members or the students are specialising, there is an urgent need for all those who are in the universities to know how the development process goes on in the country and what problems are being encountered in achieving the objectives of planning. Similarly those in Government should have opportunities to know the extent to which research carried out in the university and research institutions can be profitably employed by the programme operators to solve the problems of development facing either the target groups or any technical problem faced by the industrialists or agriculturists or transport operators and the like.

Promoting self-employment through offering appropriate courses

It is now observed that the universities turnout graduates in different disciplines who have no self-confidence to take to self-employment. That this is so even in the case of professional degree holders like the doctors, engineers and the like is most astonishing. Engineering degree holders know the engineering skills but they are unable to comprehend the entrepreneurial insights which are need to take to self-employment. Partly they should be aware of the different agencies which they have to approach for getting required assistance. Partly they must know how to assess the viability of a project. This can come by way of some training. In the case of doctors they have to be made known the areas where private practice is profitable. Of course they will have to be provided with certain facilities like housing and seed money which would encourage them to take to self-employment.

In the case of general degree holders, by and large, it is found that they require 3 to 6 months training programme if they are to take to self-employment.

In the absence of a deliberate orientation being given to these graduates to enable them to take to self-employment, it is impossible to solve the problem of unemployment. More announcements of giving incentives in the form of subsidy on interest or rebate in sales tax or even providing some margin money are not enough. The graduates ought to be able to develop confidence in running a viable project which bring them an assured income of a reasonable level. Special effort is required on the part of Government and universities in building into the system of education those components which are basically required for taking to self-employment. A number of new areas have now come up which are attractive. They include sericulture, dairy, food processing industries, agro-service centres, tiny industries in rural areas, distribution system, etc. There are opportunities for getting organised to take to self-employment by way of taking up contracts for executing public works or even for the distribution of products including essential commodities.

Developing guidelines for manpower planning

While so much is talked about increasing unemployment in this country, it is observed that no serious efforts have been made in any of the research institutions or universities to train students in manpower planning. In fact to fill up this gap, Government in the past had to set up an Institute called 'Institute of Applied Manpower Research' under the aegis of the Home Ministry. Whatever might be the merits of setting up such an institute, it only points out the lacunae in the system of education which obtains in our country. Where there are more than 120 universities, each one of them having departments like Economics, Econometrics, Mathematics, Statistics, which can undertake research in the area of employment, no university department has come so far with any guidelines for manpower budgeting. Perhaps, this requires an inter-disciplinary approach and it should be possible for the University administration to organise such interdisciplinary work in the universities in the area of manpower planning.

It is not only a question of just working out the norms for estimating employment under different development programmes. They can even take up manpower budgeting for each block or a cluster of villages. Their contribution should not stop short of developing a full programme including the technical and the financial aspects. It is no exaggeration to say that even after nearly 30 years of planning, some times even in the national plan document employment does not find a chapter. In the state plans seldom do we come across a detailed analysis of the employment effects or the employment approach to their plans. If at all there are any exceptions, they may have to be counted on finger tips and even they are still in the rudimentary stage.

Package of services to be linked with education

Improving the skills and capabilities is the task of the universities. As mentioned earlier, these skills should be related to the requirements of society. Once such skills are imparted, to expect the beneficiers to take to self-employment automatically is too much of an over-simplification of the problem of unemployment. Those with skills do not have an easy access to inputs. They find it extremely difficult to approach a financing institution. Even to start some gainful economic activity, the departments of the Government which are responsible for providing land or any other inputs are generally found to exhibit their apathy towards the unemployed who go to them for help. There are several instances where out of a sheer frustration in having failed to get the necessary assistance from the concerned departments of the Government/financing institutions either the unemployed have turned to violent means or have lost faith in the present societal structure and its obligations to the unemployed. One way of establishing linkage between education, employment and development is to see that those who get particular skills are provided with the package of services like land to start an industry, and financial assistance and the related inputs by the concerned departments. There must be proper coordination between the concerned departments in the Government and the universities in the matter of enabling graduates to take to self-employment.

By way of illustration, it may be mentioned that there are a large number of engineers and diploma holders in engineering. There are the Industrial Training Institute's certificate holders. The unemployed army of such persons is increasing from day to day. This is partly due to the fact that they are not given a package of services after they get their degrees/training. There is of course scope for improving their training. Skills which are more in demand should be provided at such institutes instead of following a set, traditional and routine courses. A continuous effort should be made for identifying the trades in which training is to be given either at the Industrial Training Institutes or at the Engineering colleges/universities. Perhaps, there is need for a separate department in Government to ensure the providing of a package of services to those who are trained at ITIs at Universities with special skills.

Relationship between industries and universities

Industries do not even care to tell their requirements of skilled manpower either to the universities or to the Government. It is generally agreed that the university or the ITI products who are absorbed either in the public or private sector are mostly trained at the Government cost. It should be possible for the industry to play a more useful and dynamic role in establishing proper linkage between education and development. They can do it in several ways. Perhaps one may visualise: (a) indicating the type of skills required and the approximate number required per year; (b) offering apprenticeship facilities for the raw-graduates/certificate holders; (c) absorbing those who are accepted as apprentices in their establishments; (d) participating in the actual training programme at the training institutes or universities; (e) supplementing the effort of the universities/entrepreneurial training institutes by organising entrepreneurial training programmes for the benefit of the university graduates/diploma holders. Unless there is a close interaction between industries and universities, it is feared the much needed linkage will continue to be absent which is more disastrous to the country and for the educational system.

There is also the question of funding the training programmes. It goes beyond one's comprehension as to why the industry which benefits from the developing of skills at the public cost is not able to make a direct contribution for offering the training facilities at institutes specially meant for particular skills or at the departments in universities which are willing to offer the required training programmes. The universities can also offer consultancy services for the industry. This can be both in the areas of manufacture as well as in the areas of management. There is, thus, great scope for bringing about closer coordination between industries and universities. In several countries of West, there

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Reappraisal of educational objectives

Convocation

It may be a trite observation but nevertheless true to say that education is a key-factor in economic development and social change. Education affects economic development both directly and indirectly; directly through increase in production and employment and indirectly by increasing mobility and by inculcating the right kinds of skills and attitudes and by removing some of the obstacles to social change and progress.

As you all know, the intrinsic value of education lies in the preservation and transmission of knowledge. Education has played this catalytic role through the ages along with other academic institutions like the library, the museum, the archives and so on. It is this aspect of education that has given us our heritage, culture, tradition and ethos as a society. Education has also been responsible for invention and innovations through its second important objective of research, criticism and enquiry. The direct outcome of scientific research is the creation of new knowledge or techniques or instruments, which lead to improvement of technology and agriculture, trade, industry, transport etc. In this context, I am not thinking of the question whether applied research is more useful than fundamental research and whether a broad-based educational pyramid is more innovatory than a narrow-based meritocracy or even of the equitable distribution of the time of the teaching faculty between teaching and research. In fact, I have always felt that teaching and research must go together and will "wither away" in isolation. Similarly, it goes without saying that fundamental research is as important as socially relevant research.

I can go on recounting the gains of education to the human society and to its endeavour for a richer and fuller life but let me say that it also creates problems if we do not deal with young minds through proper understanding of human psychology and a degree of circumspection. Unplanned proliferation of institutions can also lead to many problems like sub-viable facilities, overcrowding in classes, educated unemployment etc. An indivisible effect of lack of direction in recent years has been the development of wrong attitudes to work and life. This is manifest in the craze for "white collar jobs" and the lack of job satisfaction among graduates in our country, for many of them are unable to find jobs. Commensurate with their qualifications and training and this can be exasperating not only for the individual but may even affect his output and creativity. What is more distressing is that many university graduates feel alienated from the society of which they are an integral part. It was for this reason that at a recent seminar held at Leverhulme the main concern was not with expansion or regulation of numbers but how to supply graduates of the right type to meet the needs of the society and industry.

The average student who enters the school or university often belongs to the first generation of learners and comes from a family that has for many years lived below the poverty line. The student does not have adequate resources to buy the prescribed textbooks and has no quiet corner for study at home. Nevertheless, they look upon education as a means of vertical mobiliiy and to deny them access to higher education would be socially unjust and morally revolting. Of course, one has to evolve new techniques of teaching like remedial coaching and to recast the curriculum suitably to enable these students to come up to our expectations. These problems can no longer be ignored by our educational planners.

In the present context of indecision about everything, it is not surprising that a simmering or seething discontent is apparently visible in our university and college campuses. Students want jobs and certificates, diplomas and degrees as passport for all kinds of jobs but jobs are hard to come by partly because of the undeveloped stage of our economy and partly due to the sluggish rate of economic growth. The situation has been further aggravated by the spectacular growth of university education from the qnantitative point of view. As against an enrolment of 19,53,700 students in 84 universities, nine institutions deemed to be universities and 3,604 colleges in the year 1970-71, there were 27,52,437 students enrolled in 1980-81 in as many as 112 universities, 11 institutions deemed to be universities and 4,772 colleges. The growth rate of enrolment was 13.4 per cent during the decade 1961-62 to 1970-71. This came down to 3.5 per cent in the next decade but even then our resources are so meagre that we are finding it exceedingly difficult to provide even a modicum of standards.

The very dimensions and complexity of the system of higher education in india indicate that improvements can be brought about only by concentrating on essential growth points both in the university and college systems. Efforts have, therefore, to be made to raise the level of university education, fristly, to the highest standards obtaining in our own country; and secondly to raise standards in our country to the highest standards 'anywhere' in the world. Simultaneously, efforts have to be made to bring about coordination, keeping in view the level of existing facilities and the needs for expansion in order to meet the developmental requirements of the country, specially the need for trained personnel for shouldering positions of responsibility in various fields.

Since its very inception, the U.G.C. has taken several measures for the maintenance and coordination of standards of teaching, research and examinations. Improvement of libraries and laboratories, institution of scholarships and fellowships, setting up of centres of advanced study and departments of special assistance in defferent academic disciplines, COSIP/COHSSIP, organisation of seminars and conferences etc., institution of teacher fellowships, modernization of courses and support for research are some of the steps which the Commission has taken to reinforce standards in our universities and colleges.

The guidelines issued to the universities underline the need for regulating admissions in relation to facilities, strengthening of postgraduate departments, development of pre-Ph D. programmes and centralisation of instrumentation and repair facilities. Another important step taken by the Commission relates to the improvement of standards in the affiliated colleges.

The Commission has also revised the criteria for determining the viability of a college. The norms hitherto adopted were based on student enrolment and strength of teachers. The Commission is now giving due consideration to the following aspects : (i) Social and educational needs of the community in which the college is located; (ii) Academic viability rather than financial, managerial or other considerations.

Unfortunately, in view of the inadequacy of resources for higher education, the pursuit and realization of excellence by our universities becomes a difficult proposition. Such attainment is possible only in limited areas and the efforts made by our universities in this direction are really commendable. Coordination, in my opinion, is far more difficult. This involves, in the first place, a linkage of educational facilities with the resources available for higher education. Similarly, coordination has also to be brought about between the need for maintaining quality at the same time ensuring equality of opportunity. Manpower requirements have also to be taken into consideration. It is also necessary to avoid duplication in highly selective areas of specialiazation in order that the available resources in respect of teaching and research are utilized optimally.

Mr. Chancellor, may I refer briefly to some recent innovations in university education that have brought about a sea change in our concept and philosophy of education. It is now generally accepted that in order to discharge its responsibility to the education system and to the society as a whole, the university must assume extension as an important responsibility and give it the same status as teaching and research. Programmes of continuing education for various professional groups have also to be developed. These are important not only for the education of the community outside the campus but because education has to be treated as a life long activity instead to being a terminal point. I am glad to say that the University of Kashmir has taken steps to initiate some programmes for the community and I have no doubt that in course of time these will grow, much like the blossoming of flowers here at this time of the year.

The Kashmir University has also gone along with the thinking at the national level in so far as the introduction of correspondence courses is concerned. These courses are intended to provide a new stress of education to a large number of persons with the necessary aptitude to acquire further knowledge and improve their professional competence. The Kashmir University has already introduced correspondence courses for B.A., B.Com., B.Ed. and LL.B. I only hope that the university will try this out at different levels and in different subjects include some professional areas so that the facilities become as diversified as possible. The university should also try to make its correspondence course programme broad-based to include job-oriented courses, continuing education and extension programmes. If a student so desires, there should be a sufficient degree of flexibility and freedom to shift from one type of course to another or to take course in units or modules. The system of correspondence courses in the S.N.D.T. Womens University where I was Vice-Chancellor for a number of years allows students to resume their studies after a gap of several years and also offer 'bridge courses' which permit them to take up lines for which they may not be otherwise equipped. I would like to commend this to your Vice-Chancellor for his consideration.

I would also like to refer to the restructuring of courses, which is a major programme undertaken in recent years with a view to enabling students to offer new subject combinations with at least one application oriented subject. The objective of the programme is to make first degree courses relevant to the local environment and the developmental needs of the community and to link education with practical experience and productivity. Similarly, in the guidelines issued to the universities for reorganisation of courses under the new pattern of education, emphasis has been laid on foundation courses which are conceived as awareness courses, core programmes consisting of one or two main subjects, applied studies and projects, extension programmes and other measures like flexibility, interdisciplinary projects and examination reforms which should result in better teaching learning processes. The University of Kashmir has already taken some steps to implement the scheme of course-restructuring through its colleges but I hope that your College Development Council will activate this movement further and the university itself will take up the introduction of foundation

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Campus News

Nuclear seminar held at BHU

A symposium on Nuclear Chemistry and Radiochemistry was held at the Chemistry Department of the Banaras Hindu University under the sponsorship of the department of atomic energy. Over 150 nuclear scientists assembled at Varanasi from all over India. Prof. B.M. Shukla, convener of the organising committee and head of the department of chemistry, Banaras Hindu University welcomed the delegates. He emphasised the importance of study and research in this field in the country's overall development and the need for introduction of this subject in all Indian universities at the post-graduate level.

Prof K.N. Mishra stressed the need for establishing an institute of nuclear sciences at BHU to promote study and research in this field in the northern region. He also pleaded for the teaching of science subjects in the regional languages to create a popular and strong basis. Mr Dayal Krishna emphasised the need for the utilisation of modern computer techniques for documentation to avoid duplication in the field of research and development. In his inaugural address, the Vice-Chancellor, Dr Iqbal Narain. referred to the relevance of science and technology in the overall development of the society, emphasising the role of nuclear scientists in this direction. Dr. Vibhuti Narain Singh in his capacity as Chancellor referred to the dream of late Pandit M.M. Malvyia for a fusion of what is best in the East and West. Referring to the importance of Varanasi as a centre of learning he pleaded for application of nuclear researches in solving problems of energy and pollution. He called upon the scientists of the BHU to take up the question of solving the pollution of the Ganga water.

Bengal VCs endorse open varsity suggestion

The Advisory Committee of the Vice-Chancellors of eight universities of West Bengal met in Calcutta under the chairmanship of the Minister for Higher Education. Mr Sambhu Ghosh. They unanimously recommended that an Open University in the British model be opened immediately and it requested the State Government to go ahead with the preliminaries in this respect. Simultaneously, the Committee recommended that team of the VCs may visit Sri Lanka in the near future to make an on-the-spot study of the actual operation of the Open University there. Mr Ghosh said that initially only Arts and Commerce courses upto degree level would be introduced in the proposed Open University. He reiterated that any 20-year-old male worker or employee holding a Madhyamik (Pass) certificate or any woman of any age and standing, having the same minimum academic qualification, would be admitted as students to the university on 'first come, first served' basis.

The Committee also recommended to the universities to introduce M. Phil. degree course in different subjects for the benefit of teachers. The M. Phil. course—spreading over twelve months—would enable college and university teachers to claim a higher scale of pay. The UGC has made it compulsory for the teachers to obtain an M.Phil degree within five years of their entry into the teaching service so that they could claim an entry into the higher scale. Jadavpur, Calcutta and Burdwan Universities have already introduced M. Phil. course. The Committee also condoled the tragic death of Dr S.C. Banwar, Vice-Chancellor, North-Enastern Hill University recently at Shillong and demanded that a probe at the highest academic level preferably by the UGC be instituted into the cause and circumstances of Dr Banwar's death.

Role of voluntary agencies in adult education

The role of voluntary organizations in implementing the national adult education programme needs to be enhanced. A proposal to this effect has already been submitted by the Indian Adult Education Association to the Government for its consideration. Mr. V.S. Mathur, President of the Association, said that unless "people's organizations", which act as the watchdog of people's interests, were developed, the programme of adult education could not be fruitfully implemented. Misappropriation of funds and other irregularities often went undetected, because there were no "people's representatives to keep a check. In this context, he deplored the Government's non-release of funds for the past year and a half to voluntary organizations working for the programme. The Association held its 34th session at Patna this year.

Dr A.R. Kidwai Governor of Bihar, inaugurated the meeting. The meeting was attended by Dr Madhuri Shah, Chairman of the Universy Grants Commission, and Mr A.P. Sharma, Union Minister for Tourism and Civil Aviation. The conference resolved that all agencies and institutions working in rural areas, both official and voluntary, should coordinate their programmes. The aim, according to the conference, ought to be "education to develop the personality of the individual" for which emphasis from literacy as the starting point of education needed to be shifted. Mr Mathur said that many a time literacy was stressed to the exclusion of other factors like the field of interest of the person concerned. According to him, it was not necessary for a person to be a literate before he could be educated. Education in the sense of development of the mind could be undertaken through simple films, dramas or pictures that were easily understood by the rural population.

The conference urged the establishment of village school-cum-community centres, that is, utilization of schools as the focal centre for community affairs. It felt that various departments of the Government could set up centres in these schools to advise people as to what kind of work they could opt for.

Objective tests for UPSC exams

A conference of Chairmen of State Public Service Commissions of the western region was held in Ajmer recently. Dr. M.L. Sahare, Chairman of the Union Public Service Commission presided. One of the recommendations was that the objective tests should gradually replace the existing system of recruitment to the civil services. The chairman also suggested to have a question bank at the regional level. The bank will have tested questions for various disciplines. It was felt that the services of experts and professional agencies should be utilized to test the questions that would go into this bank. Initially, a special institution in Bhopal to which the Maharashtra Government had already sent test questions, would be made use of at present.

The chairmen of Rajasthan, Madhya Pradesh, Gujarat and Maharashtra Public Service Commissions recommended that where the number of candidates was large screening tests should be held to shortlist the candidates. The pattern of the question paper might be short, and of an eassy type. They felt that the process had to be a little slow in the beginning as the Commissions had to take into account the type of examination nature of jobs, requirement of departments and the adaptability of the candidates to the new system.

Dr Shahare said that a "personal contact" method had been introduced to reach the prospective Scheduled Caste and Scheduled Tribe candidates or where in respect of certain senior specialized jobs, normal advertisement was not likely to produce the right response. The procedure followed was that eminent persons and premier institutions were approached to suggest suitable names. It was done simultaneously with the advertisement.

The conference agreed that the syllabus of various examinations should be reviewed in consultation with the experts. The Maharashtra Public Service Commission had initiated action to revise the syllabus of State Civil Service examination on the lines of the Civil Services examination. It was agreed that the panel of experts should be updated and if necessary they might exchange information among Commissions regarding panel of experts It was also suggested that Commissions should be associated with promotions including those of inter-grade. Dr Snahare suggested that where Departmental Promotion Committees had not been formed they could follow the procedure at the Centre. Some changes had been made regarding the zone of consideration for promotion to posts filled by selection and preparation of year-wise panels where the DPC had not met for a number of years to reduce supersession and also eliminate injustice caused by delay. The conference also felt that the conduct of departmental examinations was not an integral part of the statutory functions of commissions and therefore these examinations might more appropriately be conducted by the departments concerned.

Technical education set-up to be revamped in Tamil Nadu

Dr V.C. Kulandaiswamy, Vice-Chancellor of the Perarignar Anna University of Technology headed a committee constituted to make an indepth assessment on the usefulness of the present trades and diploma courses. The committee would suggest new courses. It has been asked to submit its recommendations as soon as possible. The Education Minister of Tamil Nadu said poor and wrong management of the educational institutions were the reasons for student unrest. The Government was examining the implications of organising a short-term course for college and school teachers, principals and even college managements .

Population education workshop at SVU

The Population Studies Centre of Srivenkateswara University organised a workshop on population education for reviewing and preparing the reading and A.V. material for the use of degree college staff and students at Tirupati under the joint auspices of the Government of India and the Government of Andhra Pradesh. The main objectives of the workshop were: (i) to review existing lectures on population education and preparation of new lectures; (ii) to prepare a brochure on population education; (iii) to review the existing A.V. material; (iv) to select and finalise the slides on the five components of population; and (v) to identify the educational equipments to be purchased.

Dr Harinath, Director or Medical Education and Administration of the Andhra Pradesh Government in his presidential address stressed the need to create population awareness right from the childhood. He also referred to the importance of age at marriage in the Indian context. Shri C.N.

Sastry, Secretary to the Andhra Pradesh Govt. in the Department of Health delivered the valedictory address. He highlighted the importance of population education for younger generation and stressed that there should be effective coordination between the research and extension departments of the universities and the personnel working in the field of population education at the government level. Dr. K. Mahadevan, Reader, Population Studies Centre of the university while extending a vote of thanks suggested that there was a need for empirical research for scientific data on population studies.

Varsity courses to meet social needs

Dr M. Santappa, Vice-Chancellor of Madras University has pleaded for restructuring of courses to meet the social needs. He said in Madras that foundation courses at the degree level would be restructured and rules for the opening of postgraduate courses relaxed. Rigidity and conservatism would be shed. He wanted the principals and professors to come out with a list of innovative courses. The university for its part would have an open mind and consider them. Referring to unrest on the campus he said teachers and parents should find out why students were a frustrated lot. It is time that society and the university gave serious thought to arrest this frustration among the educated youth. and the slod which is slowly eroding should be checked. He said the students alone could not be blamed for their unrest. The provocation for their frustration must be probed into and the remedy found.

Statistics national board to be constituted

A National Advisory Board on Statistics is to be set up soon to provide technical guidance on policy issues involving the development of statistics. The board will also ensure better and effective coordination of statistical activities. The suggestion for setting up an apex body was made by a committee which had reviewed the national statistical system.

The Director-General of the Central Statistical Organisation, Mr K.C. Seal, informed the fifth conference of Central and States statistical organisations that in accordance with the recommendations of the Ministers' conference a small group had recently gone into the functions, composition and working procedure of the proposed National Board. In the light of the recommendations of the group it was hoped the board would be set up in the near future.

Varsity for defence studies suggested

A study group of the Chiefs of Staff Committee of the three services has recommended setting up of an integrated university of defence studies Lt Gen A M Sethna, Vice-Chief of the Army Staff said that apart from tangible benefits of recognition to selected courses conducted by the services, the university would also afford an opportunity to servicemen not selected for the Defence Services Staff College to improve their educational status through correspondence courses. He said the areas covered by the proposed university would fall into defence studies, defence management studies and defence science and technology. The excellence of training imparted at the services institutions and their educational value had been accepted by academicians. Some of the courses would qualify for direct recognition either as master's course or post-graduate diploma while other could earn 'credits'. Scuh courses were conducted at DSSC, services technical institutions and at M Tech level in the Institute of Armament Technology. The details regarding the proposed university are under the consideration of the Defence Ministry. The Institute when established will be aided by the University Grants Commission. At present Jawaharlal Nehru University has associated various staff colleges with itsa cademic programmes.

M.Phil courses in Madras colleges

The Syndicate of Madras University has accepted the proposal to introduce M. Phil courses in the postgraduate colleges. Special emphasis has also been laid on the study of Sanskrit by launching postgraduate and doctoral courses where facilities exist. Dr M. Santappa, Vice-Chancellor of the University said in Tiruchi that the university was making detailed exercises on the semester system and the decision would be taken before the next academic year. If was unfortunate that there were sections among both teachers and students who opposed the internal assessment system but wanted the semester system to continue. He said that the university would encourage more number of postgraduate colleges to introduce M.Phil courses especially in the Commerce faculty. The Vice-Chancellor said that the university would celebrate the post-centenary silver jubilee. A committee with the Chief Justice of Madras High Court has already been constituted for the purpose.

Separate board for Chandigarh

The Union Home Ministry's Advisory Committee for Chandigarh has decided to set up an independent board for conducting examinations in the Union Territory. The committee took this decision under the chairmanship of Union Home Minister, Giani Zail Singh.

The committee decided to improve the standard of school education in the Union Territory. Presently the matriculation examination in Chandigarh is conducted by the Central Board of Education while the middle examination is arranged by the Education Department of the Union Territory administration. A demand for an independent School examination board had been raised quite often.

Randhawa pleads for applied research

Dr M.S. Randhawa, former Vice-Chancellor of Punjab Agricultural University, while presiding at the Seminar on Social Relevance of Research in India organised by the Panjab University said that the social relevance of scientific research could be judged from the successful green revolution in Punjab. It had materially transformed the life of the people of the State. He added that the history of the agriculture could be changed if science solved the mystery of photo-synthesis. He pleaded for a revolutionary change in the educational system so that people acquired knowledge of science and could apply its use in their everyday life.

News from Agril. Varsities

Seminar on farm extension system held at Pusa

The Department of Extension Education of the Rajendra Agricultural University organised a three-day national seminar on raising organisational efficiency for higher agricultural productivity through reorganised agricultural extension system at Pusa (Bihar) on the occasion of the silver jubilee of postgraduate teaching and rearch in extension education in India. The recommendations of the Seminar on various pertinent dimensions of the reorganised extension system, viz. (a) training of different functionaries, (b) visit of specialists, extension officers and village Extension Workers, (c) linkage with research, development and input agencies, and (d) organisational structure and personnel management were discussed at length at the seminar. Over 100 delegates from different agricultural universities of the country, the Union and the State Departments of Agriculture and other semi-government organisations participated in the seminar and more than 30 technical papers were presented.

Dr K.K. Jha, Vice-Chancellor, of the University in his address emphasised upon improving the men and material resources for enhancing the effectiveness of the system. He stressed that the technology to be transferred among the farmers needs to be rigorously tried in the farmers' field with due consideration of the farmers' felt problems, needs, their socio-personal and economic conditions. He added that greater care should be taken while making choice for technology, extension personnel' subject maker specialists and contact farmers in this reorganised extension system.

IARI suggests measures for increasing wheat production

A 15-point programme aimed at maximising wheat production in the ensuring rabi season has been drawn up for the guidance of farmers by experts of the Indian Agricultural Research Institute. Dr H.K. Jain, Director of IARI, said that the situation as of now was favourable to a good wheat crop. If, in addition, the "do's and dont's" contained in this suggest tion were followed by the farmers, the 1981-82 wheat target of 38 million could well be realised.

The suggestion is being circulated to State Governments in the wheat belt, the farm extension services network, the media and farmers' organisations. The thrust of the suggestion is that, other things remaining the same, a sizable increase in wheat yield can be obtained if the correct variety is chosen and sown at the right time, chemical fertilisers are applied in the recommended doses, irrigation is provided according to a scientific time-schedule, the recommended implements for sowing are used and weed is effectively controlled. The experts have stressed that all possible efforts must be made to complete wheat sowing before the end of November. Late sowing reduces wheat yields. If this kind of care is exercised, wheat yield of about six to seven tonnes per hectare is fully possible in India. Farmers have also been advised to go in for dwarf varieties, even in limited irrigation areas, and take fresh stocks of seeds from National Seeds Corporation or other official agencies after four to five years of using their own products as seeds.

New man-made variety released

A completely new plant has emerged in Punjab agriculture with the release, of a variety of Triticale developed by the Punjab Agricultural University. It is called a "man made" cereal plant while others have been made by nature through election and evolution. It is obtained by crossing wheat with rye. The objective of bringing in the characteristics of rye into wheat is to put more protein particularly lysine content into the grains. More importantly, triticale is disease resistant and hardy. The name of the released variety is TL-419 which combines high yield with resistance to diseases and good quality grains. Several other varieties of triticale are also under test.

The University has been testing this particular variety since 1975. It gave 20 per cent more yield than Kalyan Sona and 9 per cent more than Sonalika varieties of wheat but equalled in yield of WL-711. It fought successfully brown and yellow rusts during all these years which is a great advantage. It can also resist other diseases of wheat like loose smut, karnalbunt and powdery mildew. The chappatis prepared from triticale atta were good and puffed well. However, their colour is reddish as compared with the creamish of wheat.

World bank mission lauds seeds project

The World Bank Supervision Mission headed by Dr. S. Thillairajah, which visited HAU recently, lauded the progress made by the Haryana Agricultural University in the first phase of the HAU project on breedeer and foundation seed. This project, sponsored by the World Bank aims at producing breeder seed of almost all the released varieties in Haryana State and at producing sufficient quantity of foundation seed to meet the requirement of Haryana Seed Development Corporation. The project has also undertaken to produce sufficient quantity of certified seed for further multiplication. Dr. H.C. Sharma, Prodect Director said that HAU is producing about 1200 to 1500 quintals of breeder seed and over 5000 quintals of foundation seed under this project to cater to the needs of the State. Dr. Sharma said that excellent facilities have been developed at the University for screening the seeds against seed-borne diseases and for the analysis of other quality components of the seeds.

Science & Technology

Need for sociological evaluation of science & technology stressed

Mr C.P.N. Singh, Governor of Uttar Pradesh while inaugurating the national seminar on social perspective of development of science and technology in India as part of the proceedings of the four-day Sixth Congress of Indian Academy of Social Sciences said that sociological evaluation of science and technology was very necessary. In the advanced countries of the west there were a lot of studies available on the inter-relationship between the development of science and technology and development of social institutions and social perspectives but in-depth studies of this nature were by and large missing in this country. The Governor said it was high time that the Indian scientists, social scientists and research bodies realised the importance of studying the perspectives of development of science and technology in this country to make available the essential tools of understanding to the planners. There was a dominant philosophical view that science was the only instrument of knowledge. But while science could give them knowledge of facts within certain limits, it could give no knowledge in regard to values that the human society had to pursue. He said an important theme had come into forefront according to which there was a great need for synthesis of science and spirituality. This contention needed critical examination.

The Governor also referred to three important issues that demanded special attention. First there was the issue of interdisciplinary approach which enabled social scientists to look upon scientific and technological development as a social phenomenon and enabled scientists and technologists to determine goals of their work in the context of social needs. Second, the need for analysing deeply the limitations of human knowledge was emphasised, and thirdly the Governor said there was the issue of finding urgent answers to the problems of social engineering to enlighten policy makers in regard to the direction they must pursue.

Prof. Nurul Hasan, Vice President of the Council of Scientific and Industrial Research in his keynote address said that it would not be possible to sustain scientific and technological effort and to place appropriate goals before our scientists and engineers until independence from foreign control in scientific field was ensured and benefit of science and technology reached the poor masses. He said due to the broad vision of Pandit Jawaharlal Nehru a considerable scientific base had been established in the country as was evident from the fact that India had today the third largest reservoir of scientific and technical personnel in the world. Prof. Hasan said though the problem of poverty was still very much with us, the country had made significant strides in several fields. Famines had become a thing of the past, education had spread and the standard of living of the common man had definitely improved. Referring to the advocacy of India depending on traditional technology, he said if traditional technology had solved the country's problems, it would have not remained poor and backward. He said science and technology could not be divoreed from social objectives. There was a national consensus on attaining three objectives of eradicating poverty, achieving self-reliance and self-sufficiency in defence capability. There were primarily social objectives and to attain them full use of scientific and technological capability was essential.

Prof. S. Sampath, Chairman, Reception Committee and Director, Indian Institute of Technology, Kanpur, welcomed the Governor and other distinguished scientists. Dr (Mrs) Hemlata Swarup, Vice-Chancellor of Kanpur University also attended the conference.

Bihar academy of sciences inaugurated

The Bihar Academy of Sciences was constituted recently. The senior scientists of various universities in the state have become its members. Prof S. Nurul Hasan, Vice-President Council of Scientific and Industrial Research inaugurated the Academy in Patna. He called upon the scientists to study the various problems faced by our country and find solutions accordingly. He said that central institutes like the Indian School of Mines, National Metallurgical Research Laboratory and Steel Authority of India, which were located in the state would be associated with the Academy so as to make it more purposeful.

Dr A.R. Kidwai, Governor of the State who presided over the function, emphasised that we should encourage younger scientists in research activities. He said that research in science and technology could not be given up at any stage because there was no end to it. Dr. Jagannath Mishra, Chief Minister of Bihar, who was also present, assured the scientists all possible facilities in conducting their research activities. Dr Ramavatar Shukla, Chairman of the Bihar Inter-University Board and President of the Academy while extending a warm welcome said that the Academy will always try to attain highest scientific and academic standards.

INSA assistance for scientists

Indian National Science Academy provides deserving scientists partial financial support to participate in important international scientific conferences/symposia abroad. Scientists interested to avail financial support from the Academy for international conferences to be held during 1982-83 may apply in the prescribed proforma which can be obtained from the Office of the Executive Secretary, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi-110002 latest by 31st January 1982.

The conferences to be supported by INSA fall under two different categories, viz. (i) those which are sponsored by the International Council of Scientific Unions (ICSU) and its affiliated bodies (ICSU conferences) and (ii) those which are sponsored by other agencies (non-ICSU conferences). As for ICSU conferences, the financial support is limited to half international air fare plus maintenance allowance for the period of the conference. For non-ICSU conferences the support is limited to Rs 4,000.00 only.

Scientists who have been invited to deliver plenary lectures/preside over sessions or whose paper has been accepted for presentation, and who will also be provided subsistence allowance during their stay abroad by some other agency, will be given preference over others. Eligible applicants below 40 years will be given weightage over other scientists.

All the applications for ICSU-sponsored conferences will be considered only once i.e. during March 1982 while applications for non-ICSU conferences (as mentioned above) may be considered four times during 1982-83 i.e. March, June, September and December. Applications for non-ICSU conferences received less than two months prior to the commencement of the conference may not be considered by the Academy.

News from UGC

Three tier plan to train librarians

The University Grants Commission has launched a three-tier scheme to train librarians in the country. An experts' committee has been set up to work out details of the programme which envisages library development on a regional basis.

The libraries are an essential and inseparable part of the academic programme and as a means to promote communication and advancement of knowledge. Therefore, there is an urgent need for orientation of college librarians so that libraries can fulfil this task. The three-tier training programme comprises advanced training for librarians who already have basic qualifications in the library science, training for those librarians who have had no initiation in library science, and a training programme for sub-professional level librarians. These training programmes will be organised at various university centres by rotation so as to cover all college librarians during the current plan period. No separate fund allocation has been made for this scheme. It will draw the necessary funds from the amount allocated for regional workshops, seminars and other academic activities.

New category of national associateships

The University Grants Commission has decided to introduce a new category of national associateships under a revised scheme. These awards, totalling 150, will be given for a period of three years. They will be out of a total number of 400 national associateships already in operation. The remaining awards are in two categories—100 one-year awards and 150 five-year awards.

The awards carry a living allowance. The Commission also meets the cost of travel of the awardee. Under the revised scheme, a holder of a one-year award will be able to visit one centre, a three-year awardee two centres, and five-year awardee three centres during the period of his work.

Special awards for handicapped

The University Grants Commission has, for the first time, instituted special awards for physically handicapped students. It will cost 40 lakh rupees during the plan period. The awards are part of special programmes being initiated this year to mark the International Year of the Disabled. Under one of these programmes, 10 research associateships and 20 post-doctoral fellowships are being created for outstanding students among the physically disabled. These awards will be made annually. The awardees will also be expected to undertake teaching assignments for about six hours a week.

The value of research associateships varies from Rs. 1300 to Rs. 1500 per month. Post-doctoral fellowships are of the value of Rs. 900 per month each. Both these categories cairy suitable contingency gtants. The Commission has also asked the universities to ensure that one per cent of the junior research fellowships already allocated to them with at least one award each goes every year to physically disabled students.

Twelve crore rupees for science projects

The University Grants Commission has funded nearly 1600 research projects on sciences over the past six years, since the beginning of the fifth plan, a ta cost of about 12 crore rupees. Nearly 200 of these projects have already been completed. Apart from basic sciences, the projects cover applied fields and emerging areas like environment, ecology, earth sciences and bio-sciences. The maximum number of approved research projects are in subjects of biological sciences (663) followed by Chemistry (453) and Physics (253). The break-up of the remainder is as follows :

Engineering & Technology—85, Geology—77, Mathematics & Statistics—44 and Geography—33.

About 125 of these projects have special relevance to environmental sciences and ecology. Nearly a fourth of the projects have R & D value and are application-oriented. Thirty departmental research projects to the tune of over two and a half crore rupees have also been approved by the UGC for eight universities. These projects cover Physics, Chemistry, Botany and Zoology, Geology and Mathematics etc.

Exam reform unit for Jammu

The University Grants Commission has approved the proposal of Jammu University for the setting up of an Examination Reform Unit. The Commission has recommended financial assistance initially for a period of three years subject to a ceiling of one lakh rupees per year. The University is developing question banks for nearly 130 papers at the under-graduate level, besides taking steps for restructuring its courses in the light of the UGC's recommendations. The Commission's approval follows the visit of a committee to the University to examine the proposal.

Awards & Medals

Award to four scientists

Four scientists of the Central Food Technological Research Institute (CFTRI) have been awarded the "K.U. Patel Memorial Award" for their research paper on indigenous tinplate container for food products. The scientists are : Dr. M. Mahadeviah, Mrs. R. V. Gowramma, Mr. R. Naresh and Mr. B. Anandaswamy. Dr. Mahadeviah and Mrs. R.V. Gowramma have also been awarded the 1980 "Wekfield Award" for their review paper on metallic contamination in canned food products by the All-India Food Preservers Association.

Jawaharlal Nehru fellowships

The Jawaharlal Nehru memorial fund has announced the award of Jawaharlal Nehru fellowships to Dr. Balakrishnan Nair, Prof. Jagannath Upadhyay and Prof. S.N. Misra. Prof. Nair is head of the department of aquatic biology and fisheries, University of Kerala. The project he has chosen for the fellowship is "ecology of biodeterioration in the sea around India". Prof. Upadhyay is professor, Pali Vibhaga, Sampurnananda Sanskrit University, Varanasi. He will devote his fellowship to do research on "Buddhist tantric tradition: principles and potentialities". Prof. S.N. Misra is professor of economics in the institute of economic growth, Delhi. He has been interested in problems of tribal economic systems, a subject of great interest for Indian social scientists and planners. Prof. Misra has been awarded a fellowship for "investigations of tribal economic structures and change in India".

Biomedical research awards announced

The Indian Council of Medical Research (ICMR) has selected 17 scientists for various national awards in biomedical research this year. The Basanti Devi Amir Chand prize has been awarded to Dr D.K. Dastur of Grant Medical College, Bombay, for his outstanding contribution in the field of neuro-tuberculosis and neuromuscular disorders in leprosy and malnutrition. Dr P.K. Rajagopalan, Director, Vector Control Research Centre, Pondicherry, has been honoured with the Dr P.N. Raju oration award for his work on vector ecology and control. Dr P.B. Desai, Director, Tata Memorial Centre, Bombay, has been given the Sandoz oration award for his work on cancer therapy. Dr K.B. Sharma, Dean, Maulana Azad Medical College, New Delhi, has been chosen for the Dr Y.S. Narayana Rao oration award for his research contributions in streptococcal infection, epidemiology of salmonellosis and antibiotic resistance among bacteria.

The Chaturvedi Kalavati Jagmohan Das memorial award has gone to Dr P.M. Dalal, Chief of Neurology and Neurosciences at T.N. Medical College, Bombay, for his research work on cerebrovascular diseases. The Dr Kamala Menon medical research award has been awarded to Dr Vinodini Reddy, Deputy Director, National Institute of Nutrition (NIND, Hyderabad) for her research contributions in nutritional problems among children.

The Kshanika oration award for women scientists has been awarded to Dr Surinder Kaur, Associate Professor of Dermatology at PGI, Chandigarh, for her work on leprosy. Dr N.N. Wig. Professor and Head of the Department of Phychiatry, AIIMS, New Delhi, has been selected for the Dr M.K. Seshadri prize for his research contributions in community mental health.

The Dr M.N. Sen oration award has gone to Dr J.S. Chopra, Professor of Neurology at PGI, Chandigarh, for his work on stroke and diabetic neuropathy. The Jalma Trust Fund oration award has been given to Dr G. Ramu, Deputy Director, Central Jalma Institute for Leprosy, Agra and Dr Indira Nath of Department of Pathology, AIIMS, New Delhi. Dr. Ramu has been honoured for his therapeutic studies in leprosy and Dr Nath for her studies on suppressor cells and development of a method of investigating certain characteristics of the leprosy causing bacteria. Dr B. Lalitha Rao of the National Institute of Virology, Pune, has bagged the Dr J.B. Srivastav award for her studies on influenza. The Dr V.N. Patwardhan prize has been awarded to Dr Ramesh, V. Bhatt of NIN, Hyderabad for his research on food toxicity.

Four share award: The Shakuntala Amir Chand prize has been shared by group scientists—Dr Nirmal Kumar Ganguly of PGI, Chandigarh (immunology of microbial infections), Dr S. Vijayalakshmi of Institute of Research in Reproduction, Bombay, Dr. Rakesh Tandon of AIIMS, New Delhi for his work on gallstone in north India and Dr R.K. Naz also of AIIMS for research work on male fertility.

Personal

1. **Dr. B.B. Sharma has been appointed Vice-Chancellor of North-Eastern Hill University.**
2. **Dr. J.S. Grewal has been appointed Vice-Chancellor of Guru Nanak Dev University.**
3. **Mr Shaiknath Mishra has been appointed Registrar of Patna University.**
4. **Shri R.V. Chavan has taken over as the Registrar of the Shivaji University.**
5. **Dr R.M. Goel has taken over as the Registrar of the Awadhesh Pratap Singh University, Rewa.**
6. **Prof. K. Chandrasekhara Reddy has taken over as the Registrar of the Sri Venkateswara University.**

Reappraisal of Educational Objectives

(Contd. from page 656)

courses and other supportive measures, including examination reforms.

In so far as our courses of study are concerned, two comments which are often made are that we do not make a serious attempt to define our objectives at the under-graduate, Post-graduate and research levels and that we fail to keep abreast of the latest developments in various branches of study. One reason for our courses being out-moded is that in many universities the procedure for revising them is rigid and laborious. Another serious obstacle is the lack of competent teachers in the new areas of knowledge and techniques of teaching which the universities may like to introduce. It was to overcome these difficulties that the commission appointed subject panels in the humanities, social sciences and science subjects, to suggest changes in syllabi or scheme of papers. The commission has also supported efforts by the universities for the orientation of their teachers through the organisation of seminars, summer institutes, refresher courses, symposia, conferences etc. Some of these efforts have borne fruit but at best they touch only a fringe of the problem, for unless the universities have an inbuilt device to effect necessary improvements, bring about desirable changes in syllabi for organising year-round refresher courses and seminars, we cannot overcome the malaise of obsolescene.

The common man is somewhat disillusioned about its utility and some thinkers are even preaching a "De-schooling Society". A re-appraisal of the functions and objectives of education is called for in order to make it an instrument of individual and social well being.

(Excerpts from the convocation address delivered by Dr. (Mrs.) Madhuri R. Shah, Chairman, University Grants Commission, at the University of Kashmir.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Social Anthropology

1. Hansda, Phanindranath. Differential transformation of culture and language among the Santals. University of Calcutta.

Political Science

1. Behera, Basant Kumar. Malaysian foreign policy and national security 1966-76. Jawaharlal Nehru University.
2. Dutta, Mrinal Kanti. West Bengal Board of Secondary Education. Rabindra Bharati University.
3. Puri, Renu. Wamen in Lok Sabha: First to fifth Lok Sabha. University of Delhi.
4. Ramchender, M. Some aspects of political leadership at district level: A study of Karimnagar District. Osmania University.
5. Sharma, Bijender Kumar. Political instability in Indian states: A theoretical and empirical study. University of Delhi.
6. Wagholikar, Sudhakar Shankarrao. Commissions of inquiries and study of procedural aspects. Marathwada University.

Economics

1. Chaudhuri, Asit Kumar. Dispersal of Industries: Problems and policies. University of Calcutta.
2. Jalil, Md. Abdul. Indirect tax revenues in Andhra Pradesh—An economic analysis and a projection. Osmania University.
3. Parekh, Jeetendra Kumar. A study of lead bank scheme with special reference to Ujjain Distt. Vikram University.
4. Mitra, Tusharkanti. Some studies in spatial and temporal variation of farm harvest price of rice in West Bengal, 1951-52 to 1975-76. University of Calcutta.
5. Tewari, Aarati. Rewa sambhagh mein parivahan ka swarup evam sambhanaen. Awadesh Pratap Singh University.
6. Venkateswara Rao, H. Long-term educational plan for India. Osmania University.

Education

1. Purkait, Biswaranjan. Administration of primary education in Bengal under Montagu-Chelmsford reforms and its bearing upon the same in post-independence West Bengal. University of Calcutta.
2. Yadav, Dev Dutt. A critical study of teacher education in the state of Haryana and its comparison with that of C.I.E. Delhi and the R.C.E. Ajmer. University of Rajasthan.

Commerce

1. Jain, Gunwantlal. Mandsaur zile ka audyogik vikas. Vikram University.
2. Viswanadham, V. Finances of Andhra Pradesh State Road Transport Corporation. Osmania University.

Psychology

1. Madhu Meeta. A comparative study of intelligence of well nourished and mal-nourished children from slums of Ludhiana City. Punjab Agricultural University.

HUMANITIES

Philosophy

1. Singh, Ahanthem Dorendra. Knowledge and belief in the context of contemporary philosophy. Visva Bharati University.

Fine Arts

1. Kulshrestha, Archana. Rajasthan ke bhitichitar aur unka atihasik mahatav. University of Rajasthan.
2. Madhurima Kishore. Problems of music education with special reference to pedagogy of Indian music. University of Delhi.

Literature

English

1. Prasad, Tadepalli Swarna Latha. A study of the dramatic art of wole soyinka. Andhra University.
2. Tapas, T.K. R.K. Narayan: The socio-economic background of his novels. Karnatak University.

Sanskrit

1. Agrawal, Mridula Kumari. Kavi Kalanidhi Shri Krishan Bhatt ki rachnaon ka samalochnatmak adhayayan. University of Rajasthan.
2. Johri Lal. Narayan Bhatt ke narayaniyam kavya ka sahityik adhayayan. University of Delhi.
3. Trivedi, R.J. A critical study of Shri Sankaracharya's philosophical doctrines as depicted in his Prakarnagranthas. Saurashtra University.

Hindi

1. Aruna Kumari. Ritikaleen satsai sahitya mein nayika—varnan. Universisy of Delhi.
2. Dewidey, Brijesh Kumar. Rewa Naresh kavyon ke sahitya parampara ka anusheelan. Awadhesh Pratap Singh University.
3. Dubey, Radhey Shyam. Bhakti kal mein Bharatiya rahasyawad ka vikas. *D. Litt.* Magadh University.
4. Kappikeri, Shankarrao Maharudrappa. Kabir and Basava: A comparative study. Karnatak University.
5. Kharate, Bhimrao Shankar. Madhyayugin kavita mein rup varnan. Visva Bharati University.
6. Pathik, Jag Dev. Ritikaleen riti kavita par Islami sanskriti ka prabhav. University of Delhi.
7. Paul, Prem. Nai kahani mein vayiektik-chetna. University of Delhi.
8. Saxena, Shiv Kumar. Chhayawadi kavya ke shringar chetna: Ras siddhant ke sandarbh mein. University of Rajasthan.
9. Tewari, Promila. Raghaie Raghav ke akhyanik kavyon ka samaj shastriya adhayan. Awadhesh Pratap Singh University.

Bengali

1. Chakraborti, Kalpana. Bishabriksha theke bibar: Bangla upanyase asamajik prem. University of Calcutta.
2. Datta, Birendranath. Ditiya biswajuddhottar Bangla katha sahitya: 1949-65. University of Calcutta.
3. Kudu, Manindra Lal. Dinabandhu natya pratibha bisleshan ebam Parabarti Bangla natak O rangamanche thar pratibha nirupan. North Bengal University.
4. Ray, Ashalata. Bhudeb Mukherjee and Bengali literature. Rabindra Bharati University.

Telugu

1. Venkateswarlu, Bittu. Planatiseemalo Kolatam. Nagarjuna University.

Geography

1. Singh, J.N. Population geography of Magadh plain. Magadh University.

History

1. Bhawmik, Saroj Kumar. Rural police and local justice in Bengal, 1872-1970. University of Calcutta.
2. Chawla, Sandeep. British India and the problem of Palestine, 1917-40. University of Delhi.
3. Roy Choudhury, Nalini Ranjan. Tribal uprisings in Tripura in the second half of the nineteenth century. Rabindra Bharati University.

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from periodicals received in AIU Library during November, 1981

EDUCATIONAL PHILOSOPHY

Barrett, Richard. "Fredom, license and A.S. Neill". *Oxford Review of Education* 7(2) ; 1981 : 157-64.

Deshmukh, M.N. "Taxonomy of objectives for creative teaching". *Quest in Education* 18(3) ; July 81 : 235-42.

Peterson, Garg W. and Stakenas. "Performance-based education : Method for preserving quality, equal opportunity and economy in public higher education". *Journal of Higher Education* (Ohio) 52 (4) ; July-Aug. 81 : 352-68.

EDUCATIONAL PSYCHOLOGY

Bellezza, Francis S. "Mnemonic devices : Classification, characteristics and criteria". *Review of Educational Research* 51 (2) ; Summer 81 : 247-75.

Melton, Reginald F. "Individualised learning methods in perspective". *Higher Education* 10(4) ; July 81 : 403-23.

Sharma, Harish Chandra and Ahuja, Malvinder. "Performance as a function of anxiety and feed-back in a self instruction situation". *Quest in Education* 18(1); Jan. 81 : 39-45.

EDUCATIONAL SOCIOLOGY

Clark, Charles. "The sociology of knowledge : What it is and what it is not". *Oxford Review of Education* 7(2) ; 1981 : 145-55.

Fry, Gerald W. "Degreeism : Disease or cure ?" *Higher Education* 10(5) ; Sept. 81 : 517-27.

Raghavachari, V.P. "Unification of teachers' movement in India". *Indian Education* 11(7) ; Oct. 81 : 18-24.

EDUCATIONAL PLANNING

Mc Garg, Robert. "Educational reform : The human dimension". *Prospects* 11(1) ; 1981 : 72-82.

Ravishankar, S. "Education in the 6th plan. I". *Indian "Education* 11(7) ; Oct. 81 : 33-4.

Williams, Gareth. "Of adversity and innovation in higher education". *Studies in Higher Education* 6(2) ; 1981 : 131-8.

EDUCATIONAL ADMINISTRATION

Chait, Richard P and Gueths, James. "Proposing a framework for faculty development". *Change* 13(4) ; May-June 81 : 30-3.

Imrie, B.W. "Freedom and control in higher education : Who needs a policy ?" *Higher Education* 10(5) ; Sept. 81 : 551-72.

Kaul, J. N. "University community and its autonomy". *Indian Education* 11 (1-2) ; Apr.-May 81 : 35-7.

McCarthy, Jane E. "Conflict and mediation in the academy". *New Directions for Higher Education* 8(4) ; 1980 : 1-8.

WHO SHOULD run the universities ?" : Views expressed by members and ex-members of the AIU regarding management of Universities". *University News* 19(17) ; Sept. 81 : 478-80.

Zwingle, J. L. "Resolving conflict in the upper echelons". *New Directions for Higher Education* 8(4) ; 1980 : 33-42.

TEACHING

Jones, John. "Students' models of university teaching". *Higher Education* 10(5) ; Sept. 81 : 529-49.

Mukhopadhyay, M. and Balagurusami, Sushila. "Earning competencies through CBTE : A study of some correlates". *Indian Education* 11(7) ; Oct. 81 : 13-15.

EDUCATIONAL RESEARCH

Bhatnagar, R. P. "Current research in education : The malady". *Indian Education* 11(7) ; Oct. 81 : 8-12.

Pillai, J. K. "Teaching and research in education in South Indian Universities". *Bulletin Madras Development Seminar Series* 11(1) ; Jan. 81 : 56-63.

EDUCATIONAL TECHNOLOGY

Saxena, A,B. The appropriate educational technology". *Education Quarterly* 33(2) ; Apr. 81 : 4-6.

Stevenson, Jim. "Media in the Open University : A look towards the 1980s." *Teaching at a Distance* (19) ; Summer 81 : 19-23.

EVALUATION

Julka, Satyapal. "Status of examination reforms". *Education Quarterly* 33(1) : Jan. 81 : 24-5.

King, Harry A. and Karres, Linvel E. "INDEX : An interactive computer programme for item analysis of objective test". *Educational and Psychological Measurement* 41(1) ; Spring 81 : 181-3.

Leinhardt, Gaea and Seewald, Andrea Mar. "Overlap : What's tested, what's taught" ?. *Journal of Educational Measurement* 18(2) ; Summer 81 : 85-96.

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ECONOMICS OF EDUCATION

Haragopal, G. "Education as an investment in human resources development". *Indian Education* 11(7) : Oct. 81 : 35-8.

Monk, David H. "Toward a multi level perspective on the allocation of educational resources". *Review of Educational Research* 51(2) ; Summer 81 : 215-36.

Tilak, Jandhyala B. G. "Contribution of education to economic growth". *Manpower Journal* 16(2) ; July-Sept. 80 : 31-48.

PROFESSIONAL EDUCATION

Rotem, Arie and Bandaranayake, Raja. "Difficulties in improving medical education : A framework for analysis". *Higher Education* 10(5) ; Sept. 81 : 597-603.

ADULT EDUCATION

Biswal, B.N. "A study of reactions of the students of correspondence education". *Indian Education* 11(7) ; Oct. 81 : 27-9.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

Bir Singh, "Education in 1980s." *Education Quarterly* 33(1) ; Jan. 81 : 3-7.

Datta, Amlan. "Focus on Santiniketan". *University News* 19(17) ; 1 Sept. 81 : 473-4,480.

Di Bona, Joseph E. "Indigenous virtue and foreign vice : Alternative perspectives on colonial education". *Comparative Education Review* 25(2) ; June 81 : 202-15.

Kirkatch, N. F. "The relationship between higher education establishments and the industrial enterprises". *Higher Education in Europe* 6(2) ; Apr.-June 81 : 19-21.

Marshall, Jane. "China picks up pieces". *Times Higher Education Supplement* (467) ; 16 Oct. 81 : 10.

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Birsa Agricultural University
Ranchi (Bihar)

Advertisement No. 4/81

Applications are invited from Indian Citizen upto *8th December 1981* (22nd December, 1981 for candidate abroad and in Andaman and Nicobar Islands, Lakshadweep, Minicoy and Amindivi Islands, State/Union Territories in the North Eastern Region, Ladakh Division of J & K State and Sikkim) for the following posts in the University Headquarters and faculties.

UNIVERSITY HEADQUARTERS

1. Registrar (One Post): Rs. 1500-2500.

Qualifications: (i) Doctorate in any branch of Veterinary Science & Animal Husbandry/Agricultural Sciences/Forestry or related field with atleast ten years academic and/or administrative experience. (ii) A good knowledge of education system prevalent in the Country preferably of the pattern of Agricultural University (iii) Administrative experience in a University organization shall be preferential qualification.

2. Dy. Registrar (One Post): Rs. 1200-1900

Qualifications: (i) Doctorate degree in any branch of Agricultural/Veterinary Science & Animal Husbandry or in a related field with seven years of academic and/or administrative experience (ii) A good knowledge of educational system prevalent in the Country preferably on the pattern of Agricultural University (iii) Administrative experience in a University organisation shall be preferential qualification.

3. Assistant Registrar (Two Posts): Rs. 700-1600.

Qualifications: (i) Master's Degree in any branch of Veterinary Science & Animal Husbandry/Agricultural Science or in a related field with two years of academic and/or administrative experience (ii) A good knowledge of educational system prevalent in the Country (iii) Administrative experience in a University organisation shall be preferential qualification.

4. Establishment Officer (One Post): Rs. 700-1600.

Qualifications: (i) Bachelor's Degree in Arts/Science/Commerce/Agriculture/Veterinary Science & Animal Husbandry (ii) Five years of experience of working in the establishment/Administrative/Personnel Management/Section of the College/University or Corporation/Public Sector undertaking (iii) Experience as Administrative Officer/Personnel Officer/Personnel Manager/Sectional Officer in establishment and/or administrative section of Agricultural University will be a preferential qualification (iv) Knowledge of working of the various sections of the University Headquarters is desirable.

5. Recruitment Officer (One Post): Rs. 700-1600.

Qualifications: (i) Bachelor's degree in Arts/Science/Commerce/Agriculture/Veterinary Science & Animal Husbandry (ii) Five years of experience of working in recruitment or employment section of Central/State Govt./Agricultural University (iii) Knowledge of reservation and promotion policy in Central/State Governments.

6. Purchase Officer (One Post): Rs. 700-1600.

Qualifications: (i) Bachelor's degree in Agriculture/Veterinary Science & Animal Husbandry/Engineering/Commerce (ii) Five years of experience of working in the purchase section of Central/State Govt./Agricultural University/Public Sector undertakings, out of which two years in the responsible capacity (iii) knowledge of purchase rules, maintenance of stores etc,

7. Dy. Director Planning (One Post): Rs. 1200-1900.

Qualifications: (i) Master's degree in Agriculture/Veterinary Science & Animal Husbandry/Agril Economics/Developmental Economics/Statistics in subject concerned followed by Doctorate degree (Relaxable to High Second Class Master's degree in case of candidate with distinguished record of service in the planning cell of State/Central Government/Agricultural University). (ii) Seven years experience of planning and budgeting out of which three years in the responsible capacity or on gazetted post.

8. Estate Officer (One Post): Rs. 1060-1580.

Qualifications: (i) Atleast Second Class Master's degree in any branch of Science/Arts/Commerce (ii) Five years experience of maintaining estate and/or controlling watch and ward and/or landscape planning (iii) Retired Army Officers may also apply.

9. Dy. Director Administration (One Post): Rs. 1200-1900.

Qualifications: (i) Atleast High Second Class Master's degree (ii) Seven years experience of working in administrative service or Personnel Department of State/Central Govt./Public Sector undertaking on responsible positions (iii) Candidate with degree in personnel management/administration will get preference.

DIRECTORATE OF RESEARCH

10. Director of Research (One Post): Rs. 1500-2500.+ Rs. 250/- Special pay.

Qualifications: (i) Doctorate degree in any branch of Agricultural Science or Veterinary Science and Animal Husbandry/Forestry (ii) Ten years experience in teaching and/or research as evidenced by published work in standard research journals of which atleast five years experience should have been in a position of responsibility in an institution in which research holds an important place (iii) Evidence of leadership, outstanding achievement in research and organising research.

11. Joint Director of Research (One Post): Rs. 1500-2000.

Qualifications: (i) Doctorate Degree in any branch of Agricultural Science or Veterinary Science and Animal Husbandry or Forestry (ii) Seven years experience in teaching and/or research as evidenced by published work (iii) Evidence of leadership, outstanding achievement in research and organising research.

12. **Statistician (One Post): Rs. 1200-1900.**

Qualifications: (i) Atleast Second Class Master's degree in Statistics or Agricultural/Livestock Statistics followed by Ph.D. degree (ii) Seven years of Teaching and/or Research in Agricultural/Livestock Statistics in an Agricultural University/College/Institute, relaxable to 5 years in case of candidates having brilliant academic record. (iii) Knowledge of biometrics and design of experiments and analysis of data (iv) Evidence of published work in scientific journals.

13. **Technical Officer (One Post): Rs. 700-1600.**

Qualifications: (i) High Second Class Master's degree in any branch of Agriculture/Veterinary Science or Forestry (ii) Two years experience of teaching and/or research in the subject (Relaxable for candidates having exceptionally brilliant academic record). (iii) Experience of writing and compiling technical reports and papers is desirable.

DIRECTORATE OF EXTENSION EDUCATION

14. **Dirctor of Extension Education (One Post): Rs. 1500-2500+Rs. 250 - Special pay.**

Qualifications: (i) Bachelor's degree in Agriculture/Veterinary Science and Animal Husbandry/Forestry followed by Doctorate in Extension (ii) Ten years experience of teaching, research or field extension of which five years should have been in a position of responsibility, (iii) Evidence of leadership and outstanding achievement in extension and organising extension.

15. **Deputy Director Information (One Post): Rs. 1200-1900.**

Qualifications: (i) Atleast Second Class Master's degree in Agriculture/Veterinary Science and Animal Husbandry/Forestry followed by Doctorate degree (ii) Seven years experience of field Extension Literature. Organisation of farmers' fairs, field days, knowledge of other means of communication for carrying out the message of advance agricultural/Forestry and animal husbandry technology, relaxable to 5 years in case of candidates having brilliant academic record. (iii) A degree or diploma in journalism is desirable.

16. **Dy. Director Training (One Post): Rs. 1200-1900.**

Qualifications: (i) Atleast Second Class Master's degree in Animal Husbandry/Forestry/Agricultural Extension followed by Doctorate degree (ii) Seven years experience of teaching/research/extension, relaxable to 5 years in case of candidates having brilliant academic record. (iii) Candidate with experience of organising training programmes will be preferred.

TRANSPORT UNIT

17. **Automobile Engineer (One Post): Rs. 1200-1900.**

Qualifications: (i) B.Tech. or Equivalent in Mechanical Engineering/Automobile Engineering (ii) M.Tech. in Mechanical Engineering/Automobile Engineering (iii) Minimum of seven years experience in repairs & maintenances of vehicles/tractors (experience is relaxable in the case of candidates having good academic records).

18. **Transport Supervisor (Two Posts): Rs. 700-1600.**

Qualifications: (i) B.Tech. or Equivalent in Mechanical Engineering/Automobile Engineering (ii) Three years of experience in repair and maintenance of diesel and petrol engines in Govt./Semi Govt./Private Firms of repute (Experience relaxable in case of candidates having good academic records).

FACULTY OF FORESTRY

19. **University Professor cum Chief Scientist (Three Posts—One each in Forest Management, Forest Industry and Social Forestry) : Rs. 1500-2500.**

Qualifications : (i) Atleast Second Class Master's degree in the subject concerned followed by Doctorate degree (ii) Ten years experience of teaching and/or research in the subject concerned (iii) Good research experience as evidenced by published papers.

20. **Associates Professor cum Senior Scientist (Five Posts—One each in Silviculture, Forest Management, Forest Industy and two in Social Forestry): Rs 1200-1900.**

Qualifications : (i) Atleast Second Class Master's degree in the subject concerned followed by Doctorate degree (ii) Seven years of teaching and/or research in the subject concerned, relaxable to 5 years in case of candidates having brilliant academic records. (iii) Good research experience as evidenced by published papers will be preferential requirement.

21. **Assistant Professor cum Junior Scientist (Eight Posts—Two each in Silviculture, Forest Management, Forest Industry and Social Forestry) : Rs. 700-1600.**

Qualifications : (i) High Second Class Master's degree or its equivalent post-graduate qualifications in the subject concerned, (ii) Two years experience of teaching/research (relaxable for candidate having exceptionally brilliant academic record).

FACULTY OF VETERINARY SCIENCE & ANIMAL HUSBANDRY

22. **Associate Professor cum Senior Scientist (SMS Four Posts) : One each in Vety. Gynaecology, Animal Health, Animal Production and Animal Husbandry Extension Education : Rs. 1200-1900.**

Qualifications : (i) Doctorate degree in subject concerned. (ii) Seven years experience of teaching and/or research in the subject concerned, relaxable to 5 years in case of candidates having brilliant adademic record. (iii) Good research experience as evidenced by published papers (iv) Requirement of professional degree or diploma shall be essential qualifications.

N. B. : For post of Animal Health-candidates having Doctorate degree in Vety. Medicine/Vety. Parasitology/Vety. Microbiology/Vety. Pathology/Vety. Public Health & Epidemiology/Vety. Surgery are eligible.

(ii) Candidates for the post of Animal Production having Doctorate degree in Livestock Production/Animal Breeding/Animal Nutrition/Physiology are eligible.

23. **Senior Scientist cum Associate Professor in Pharmacology: (One Post ICAR Scheme): Rs. 1200-1900.**

Qualifications : (i) Doctorate degree in Veterinary Pharmacology with seven years experience of teaching and/or research, relaxable to 5 years in case of candidates having brilliant academic record. (ii) Good research experience as evidenced by published papers (iii) Requirements of professional degree/diploma is an essential qualifications.

24. **Junior Scientist cum Assistant Professors (Four Posts) : One each in Animal Nutrition, Animal Nutrition**

Feed Processing, Vety. Biochemistry, Vety. Pharmacology—ICAR Schemes) : Rs. 700-1600.

Qualifications : (i) High Second Class Master's degree in Veterinary Science in the subject concerned (ii) Two years experience of teaching and/or research (relaxable for candidates having brilliant academic records) (iii) Requirements of professional degree/diploma is an essential qualifications.

25. Junior Scientist cum Assistant Professor (One Post—ICAR Scheme) (Forage Breeding): Rs. 700-1600.

Qualifications : (i) Second Class Master's degree in Agriculture/Agricultural Botany with specialisation in plant breeding (ii) Two years experience in Research and/or teaching in plant breeding (relaxable for the candidates having brilliant academic records) (iii) Preference will be given to the candidates having experience in breeding of forage crops.

26. Analytical Chemist (One Post—ICAR Scheme) : Rs. 700-1600.

Qualifications : (i) Second Class Master's degree in Agricultural Chemistry/Chemistry (ii) Two years experience in research and/or teaching in analytical works on plants and soil (relaxable for candidates having brilliant academic records).

FACULTY OF AGRICULTURE

27. University Professor cum Chief Scientist Agronomy (One Post) : Rs. 1500-2500

Qualifications : (i) Second Class M.Sc. (Ag.) in Agronomy followed by Doctorate degree (ii) Ten years experience of teaching and/or research in the field of Agronomy (iii) Good research experience as evidenced by published papers (iv) Requirement of professional degree or diploma shall be essential qualification.

28. Senior Scientist cum Associate Professor (Dry Land) : (One Post) —ICAR Scheme in Agricultural Engineering) : Rs. 1200-1900.

Qualifications : (i) M. Tech. in Soil & Water Engg./Farm Machinery/M.Sc. (Ag.) Soil Conservation and Agril. Engg./S.W.C.T. with 5 years experience for M. Tech. and 7 years for Agricultural degree holders. Desirable—Ph. D. Degree.

29. Associate Professor cum Senior Scientist (SMS—Five Posts) : (One each in Agronomy, Plant Pathology, Entomology, Soil Science and Horticulture) : Rs. 1200-1900

Qualifications : (i) Second Class M.Sc. (Ag.) in the subject concerned followed by Doctorate (ii) Seven years experience of teaching and/or research in the subject concerned, relaxable to 5 years in case of candidates having brilliant, academic record. (iii) Good research experience as evidenced by published work.

30. Associate Professor cum Senior Scientist in Agril. Engineering (Prototype Scheme) : (One Post—ICAR Scheme) : Rs. 1200-1900.

Qualifications : M. Tech. in Agril. Engineering (Farm machineries) with five years teaching/research experience in the concerned subject. Preference will be given to Ph.D. degree holders/candidates having M.Sc. Degree in Soil Conservation and Agril. Engineering with 7 years experience will also be considered for the post.

31. Junior Scientist-cum-Assistant Professor in Agril. Engineering (National Demonstration) (One Post—ICAR Scheme) : Rs. 700-1600.

Qualifications : M. Tech. in Soil and Water Engg./M.Sc. (Ag.) Soil Conservation and Agril. Engg./S.W.C.T. with 2 years experience.

GENERAL INSTRUCTIONS

1. For application form, please write to the Officer in-Charge, Recruitment Cell, Birsa Agricultural University, Ranchi Veterinary College Campus, Ranchi-834007, Bihar alongwith a self addressed and stamped (**Rs. 3.60 Regd.**), envelope (23 x 10 cm.) Request for forms must specify Advt. No., Name of the post and item number.
2. Separate application with separate fee is required for each post.
3. Application forms complete in all respects should reach the undersigned together with the application fee of Rs. **10 (Ten only) (Rs. Two and paise fifty for Schedule Caste/Tribe candidate)** in the form of crossed Indian Postal Order payable to the Comptroller, Birsa Agricultural University, Ranchi-834006. Application received after the closing date will not be entertained.

   Candidates from abroad may apply on plain paper and send their application with an International Postal Orders covering the application fee in favour of Comptroller, Birsa Agricultural University, Ranchi.
4. While applying for a post in Birsa Agricultural University, the candidate should make up their mind before hand to serve the University for a minimum period of three/two years (Three years in the case of posts carrying upto pay scale of Rs. 700-1600 and two years in the case of posts carrying higher pay scales). The selected candidates shall be required to fill up a BOND FORM to the above effect duly prescribed by the University before appointment letter is issued to him/her.
5. Persons already is service must apply through proper channel. Advance copy of application submitted directly will be considered only after receiving the application through proper channel on or before the closing date.
6. Selected candidate will be on probation for two years which may be extended or curtailed as may be considered appropriate by the appointing authority.
7. The University reserves the right to increase or decrease the number of vacancies and also to withdraw the post(s) advertised at any stage.
8. The maximum age limit is 50 years. Relaxation in age may be allowed to deserving candidates/Schedule Castes/Tribes.
9. Higher initial pay may be granted to exceptionally qualified and experienced candidate.

Dr. B. N. Sahai
Officer-in-Charge, Recruitment Cell

MEERUT UNIVERSITY
MEERUT

Applications are invited for the following teaching posts:

(1) **Lecturer:** One Post of Lecturer in Agricultural Botany sanctioned by the University Grants Commission for the Department of Agricultural Botany under VI Plan in the grade of Rs. 700-40-1100-50-1600.

Minimum Qualifications

M.Phil in First Division, or a first class in High School, Intermediate, Degree and Post-Graduate examinations or first class Post Graduate degree or M.Phil with a Ph.D. degree or an average second class career taking into consideration High School, Intermediate, Degree and Post-graduate examinations with a Ph.D. degree.

Desirable: Research experience in Crop Cytogenetics/Crop Physiology/Plant Pathology.

(2) **Lecturer.** One Temporary Post of Lecturer in Physics against a leave vacancy for a period of about one year in the grade of Rs. 700-40-1100-50-1600.

Minimum Qualifications

(i) (a) A Doctor's degree or research work of an equally high standard in the relevant subject; and

(b) Consistently good academic record with First or high Second class Master's Degree or an equivalent degree of a foreign University in the relevant subject.

(ii) Where the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (i)(b) above.

(iii) If a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for at least Two years or has practical experience in a research laboratory / Organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within Five years of his appointment failing which, he will not be able to earn future increments until he fulfils these requirements.

(iv) **Explanation**

(a) For determining high Second class, the mid-point between the minimum percentages of marks fixed by a University for award of Second class and First class may be taken.

(b) For determining consistently good academic record, a candidate should either have an average of 55% of the two examinations prior to Master's degree (irrespective of the marks obtained in any of the two examinations) or 50% marks at each of the two examinations separately.

Desirable: Research experience in Electronics/Atomic and Molecular Physics.

Note: For the above mentioned posts of Lecturer in Agricultural Botany and Lecturer in Physics other things being equal, preference will be given to the Scheduled Caste/Tribe candidates who are considered fit. Such candidates should indicate in their application that they belong to scheduled caste/tribe and attach certificate to that effect from the District Magistrate of the District to which they belong. No other certificate for this purpose will be entertained.

Prescribed application forms can be obtained free of cost by sending a self-addressed envelope of size 23 x 10 cm and stamped worth **Re 0.80** from the Assistant Registrar (Academic), Meerut University, Meerut. Last date for submission of applications duly completed in all respects with recent testimonials, publications etc. and Bank Draft for **Rs. 7.50** (in the name of the Finance Officer, Meerut University, Meerut) to the Registrar Meerut University is **31.12.81.** Cheques, M.O. or I.P.Os will not be accepted. The candidates who are in service must send their applications through proper channel.

V.B. Bansal
REGISTRAR

HIMACHAL PRADESH UNIVERSITY
Recruitment Branch
SIMLA-171005.
Advertisement No. 12/81

Applications are invited on the prescribed form for the following posts so as to reach the Registrar, Himachal Pradesh University, Simla-171005, alongwith a crossed Indian Postal Order of **Rs. 10/- (Rs. 5/- for S.C./S.T.)** payable to the Finance Officer, H.P. University, Simla, by the **11th December, 1981.**

I. Professor in Political Science—1 (P.G. Centre).

II. Readers in Political Science—2 (P.G. Centre).

Political Science—1 (D.C.C.)
History—1 (D.C.C.)

Essential Qualifications and Pay Scales

I. For Professors

(a) A first or high second class Master's degree of an Indian University or an equivalent qualification of a foreign University in the subject or in allied subject with bright academic record;

(b) Either a research degree of doctoral standard or published research work of high standard in journals of repute;

(c) About 10 years experience of teaching Post-graduate classes and or research, and

(d) Experience of guiding research at Doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge in the discipline concerned.

Pay Scale: 1500-2500.

II. For Readers

(a) A first or high second class Master's degree of an Indian University or an equivalent qualification of a foreign University in the subject or allied subject with bright academic record;

(b) Either a research degree of doctoral standard or published research work of high standard in the subject concerned in journals of repute;

(c) About 5 years experience of teaching Post-graduate classes and/or research; and

(d) Competence to guide research. Provided that the Executive Council may, if necessary, relax any qualification at (a) above on the recommendation of the Vice-Chancellor or the Selection Committee, as the case may be, if the research work of a candidate as evident either from his thesis or from his published work is considered to be of a very high standard.

(Evidence of being engaged in making innovation in teaching methods and production of standard teaching material, will be an additional qualification.

Pay Scale: 1200-1900.

Candidates already in service should send their applications through proper channel. An advance copy, however, may be sent direct.

Candidates called for intetview will have to come to the place of the interview at their own expenses and bring with them their original research papers, degrees and certificates etc. for verification.

The University reserves the right to negotiate with suitable person or persons, if necessary, who may not have applied formally.

The University also reserves the right to fill up or not to fill up the posts or to call only selected candidates for interview. The number of posts likely to be filled may vary.

Application form can be obtained from the **Section Officer, Recruitment Branch, H.P. University, Simla-171005**, personally on payment of **Rs. 2/-** or by making a written request to him accompanied by self addressed envelope of 23 x 10 cms with postage stamps worth 80 Paise, and a postal Order of **Rs.** 2/- drawn in favour of the Finance Officer, H.P.U. Simla-5.

Note: (i) Applications not in conformity with the requirements as specified in the application form and applications received after the due date will not be entertained, and no correspondence will be entertained in this regard.

(ii) A person applying for more than one post should send a separate application for each post.

A. R. Chauhan
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY
KHARAGPUR
Advertisement No. R/8/81

Applications are invited for the undermentioned posts of the Indian Institute of Technology, Kharagpur, West Bengal.

A. Administrative Posts

1. **DEPUTY REGISTRAR** (Finance & Accounts): One Post.
Scale of Pay: Rs. 1100-50-1600/- plus D.A. as admissible.
Age: Preferably between 35 and 45 years.

Qualifications & Experience

Essential

(i) A high second class Master's degree in Arts, Science, Commerce or Business Administration.

(ii) A Chartered Accountant or Cost Accountant or an Accountant with equivalent qualifications.

(iii) About 10 years' experience in responsible position in financial management in Government or semi-Government organisations or in an educational institution or central university.

(iv) Considerable experience in the preparation of budget estimates, annual accounts, payment of bills etc.

(v) Familiarity with audit procedures and dealing with audit inspection reports.

(vi) Familiarity with cash handling, disbursement procedures and keeping of relevant records.

Desirable

(i) Capacity to develop corporate life in educational institution.

(ii) Should have wide sympathy with students and staff.

2. **DEPUTY REGISTRAR** (Project & Consultancy Cell): One Post (Reserved for Scheduled Caste candidate).
Scale of Pay: Rs. 1100-50-1600/- plus D.A. as admissible.
Age: Preferably between 35 and 45 years.

Qualifications & Experience

Essential

(i) A high Second Class Master's degree in Arts, Science, Commerce, Engineering, Technology or Business Administration.

(ii) About 10 years' administrative experience in a responsible position in educational institution and/or industries and/or Government or semi-Government organisation.

(iii) Experience in handling agenda, minutes and procedures of meetings.

(iv) Experience in recruitment and establishment matters.

(v) Experience in purchase and stores procedures.

Desirable

(i) Experience of handling Sponsored Research Projects and/or Industrial Consultancy Projects.

(ii) Experience in project evaluation and preparation of project reports.

(iii) Should have wide sympathy with the staff and students.

3. **DEPUTY REGISTRAR** (Stores & Purchase): One Post.
Scale of Pay: Rs. 1100-50-1600/- plus D.A. as admissible.
Age: Preferably between 35 and 45 years.

Qualifications & Experience

Essential

(i) A high Second Class Master's Degree in Arts, Science, Commerce or Business Administration.

or

A Bachelor's degree in Engineering or Technology.

(ii) About 10 years' experience in a responsible position in purchasing engineering stores in a Government or Semi-Government organisation or in an educational institution or central university.

(iii) Considerable experience and knowledge in store keeping and management.

(iv) Familiarity with purchase procedure of foreign equipment.

(v) Familiarity with Materials Management and workshops experience.

Desirable

Capacity to develop corporate life within an educational institution.

4. **AUDIT OFFICER :** One Post
Scale of Pay: Rs. 840-40-1000-EB-50-1200/- plus D.A. as admissible. (Likely to be redesignated as Assistant Registrar (Audit) in the scale of Rs. 700-1300/-).
Age: Ordinarily not below 35 years.

Qualifications & Experience

Essential

(i) Must be a Graduate and qualified chartered or Incorporated Accountant or have passed the Subordinate Accounts Service Examination of Government.

(ii) Sound knowledge of accounting (including Budget and Costing), Audit and Financial Procedure as required in a Government Organisation.

(iii) About 10 years' experience of which at least 5 years must be in a responsible position in an Accounts and/or Audit Office under Government or in any educational Institution or in a business organisation of repute or central university.

5. **ASSISTANT REGISTRAR :** One Post (Reserved for Scheduled Tribe candidate).
Scale of Pay: Rs. 700-40.900-EB-40-1100-50-1300/- plus D.A. as admissible.
Age: Ordinarily not below 30 years.

Qualifications & Experience

Essential

(i) Good degree in Arts, Science, Commerce or Business Administration.

(ii) Must have good knowledge of procedure of general administration or accounting of cash and other transaction, preferably both, and be able to draft reports and minutes of conferences.

(iii) At least 10 years' experienee in a responsible position under Government or in a large educational institution or business organisation of repute.

Desirable

Experience of supervision of recruitment work, meeting and conference work, examination work, students' welfare work and proved capacity to understand students and their problems.

B. Technical Posts

6. **ASSISTANT ENGINEER** (Mechanical): One Post.
Scale of Pay: Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200/- plus D.A. as admissible.
Age: Not below 25 years.

Qualifications & Experience

Essential

Degree in Mechanical Engineering with three years' experience or Diploma in Mechanical Engineering with 8 year's experience in one or more of the following three fields:

(i) Maintenance and operation of Refrigeration and Airconiditioning plants, room-air conditioners and water coolers.

(ii) Maintenance and servicing of petrol and diesel driven vehicles.

(iii) Water supply systems/water works system.

7. **ASSISTANT ENGINEER** (Electrical): One Post (Reserved for Scheduled Caste Candidates).

Scale of pay: Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200/- plus D.A. as admissible.

Age: Not below 25 years.

Qualifications & Experience

Essential

Degree in Electrical Engineering with 3 years' experience or Diploma in Electrical Engineering with 8 years' experience of which at least 5 years experience should relate to P.W.D., M.E.S. Railways, Electricity Board and IITs.

Job Requirements

(i) At least 6 years' experience in P.W.D., M.E.S., Electricity Board or any other Government undertaking

(ii) Knowledge of design, preparing of the electrical estimates of multistoreyed buildings, substations. H.T. & L.T. net work distribution etc. upto 11 K.V. system and its supervision.

(iii) Preventive maintenance of electrical installation.

(iv) Knowledge of inventory control and contractual work.

8. **ASSISTANT ENGINEER** (Horticulture): One Post (Reserved for Scheduled Tribe candidate).

Scale of Pay: 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200/-plus D.A. as admissible.

Qualifications

Essential: (a) A graduate in Agricultural Engineering with a minimum of 3 years' of relevant experience or a Diploma (Three years Diploma) in Agricultural Engineering with 7 years of relevant experience in a large organisation/undertakings etc.

Desirable: (i) Experience in managing gardens, maintenance of lawns and play fields, beautification of the campus etc. (ii) To superwise and maintain the Institute nursery. (iii) To supervise the maintenance of gardens in the Institute including the Guest House, Halls of Residence, Academic Departments etc.

Job Requirements: (i) To prepare estimates, design and superwise and able to organise Horticultural workc. (ii) To handle malis and other departmental staff. (iii) To maintain stores. (iv) Any other work as may be assigned to him by his superior-in-Charge or the Director.

N.B. The qualifications regarding experience is relaxable at the discretion of the competent authority in the case of candidates belonging to the Scheduled Castes or Scheduled Tribes, if at any stage of selection, the competent authority is of the opinion that sufficient number of candidates from these communities possessing the requisite experience is not likely to be available to fill up the vacancies reserved for them.

Application forms may be had from the Registrar on request along with an unstamped self-addressed envelope of size 23 cm x 10 cm. Applications accompanied with an application fee (non-refundable) of **Rs. 7.50 (Rs. 1.87 for SC/ST candidates)** payable by means of crossed Indian Postal Order to the Indian Institute of Technology. Kharagpur at Kharagpur-2 Post Office should reach the Registrar, IIT, Kharagpur by **December 17, 1981.**

Applicants who are in the employment of Government/Semi-Government organisation or of any Government undertaking must send their applications through proper channel.

A.K. Sur
REGISTRAR

Education, Employment and Development

(Continued from page 654)

is such a coordination. It should not be difficult to establish such coordination in our country.

Nodal department

If proper linkages are to be established between education, employment and development, there should be an appropriate rapport between the development departments of Government and the universities. It is felt that on the basis of experience gained in Karnataka that a strong Planning Department can be a nodal department in the Government for bringing together development departments and researchers/academicians in universities. The different development departments have to indicate to the Planning Department as in Karnataka areas in which research is required. The Planning Department may explore the possibilities of getting such research studies done in the universities where specialists are available. Again, the results of research carried out in the different universities should become available to the Planning Department on a continuous basis. The Planning Department may examine the scope for utilisation of research results in consultation with the concerned researchers and the development departments.

The Planning Department can sponsor research studies through the universities and the research institutions and finance them. There are other financing agencies like the Indian Council of Social Science Research, Council of Scientific and Industrial Research etc. It should be possible to ensure that whichever agency sponsors a particular research project, the results of such research become available to the development departments in the various states. At the state level, there can be a Research and Technological Cell in the Planning Department to coordinate all these activities.

Periodic meeting can be organised by the Planning Department to bring together the representatives of the development departments and the researchers in the universities. This should provide a forum at which areas for research and areas where universities can contribute to the formulation of the development programmes can be discussed.

In short, the communication gap between the Government and the universities in general is so wide that one gets the impression that it is the conflict of cultures which is responsible for such a hiauts. All out efforts should be made to bridge this gap and establish harmonious and mutually reinforcing relatives between them for carrying the benefits of learning, research and planning to society at large and to the target groups in particular. ☐

INDIAN INSTITUTE OF TECHNOLOGY

P.O. I.I.T., POWAI,
BOMBAY-400 076

Advertisement No. A-41/81

Applications are invited for the following permanent posts at this Institute, in the prescribed form obtainable free of charge from the Registrar, Indian Institute of Technology, P.O. I.I.T., Powai, Bombay-400 076 on request accompanied by self-addressed envelope (25 cm x 10 cm). Applicants should give an account of their academic and professional record and list of research publications. Candidates applying for the post of Assistant Professor may be considered for a Lecturer's post, if they are not having the requisite experience but otherwise qualified. Persons employed in Government/Semi Government Organization or Educational Institutions should apply through proper channel. Indian candidates abroad may apply on plain paper in duplicate. The posts carry allowances such as D.A., C.C.A., H.R.A. as per rules of the Institute which at present correspond to those admissible to the Central Government Employees stationed at Bombay. Completed applications should reach the Registrar, I.I.T., Powai, Bombay-400 076 on or before **10th December, 1981**.

Some posts of Lecturer are reserved for the candidates belonging to SC/ST community.

1. **Assistant Professor:** Scale of pay of Rs. 1200-50-1300-60-1900.
2. **Lecturer:** Scale of pay of Rs. 700-40-1100-50-1600.
3. **Assistant Librarian:** Scale of pay of Rs. 700-40-1100-50-1300.

Qualifications & Experience

1. Department of Humanities & Social Sciences

Assistant Professor

Good academic record with a Doctorate/Master's Degree in Sociology with specialisation in General Sociology, Political Sociology and Social Theory and Social Change. About 5 years' experience of teaching and/or research and development.

Provided further that candidates not possessing Ph D. may be considered if they have to their credit equivalent research published work or design/development work of a high order.

2. Interdisciplinary Programme in Energy Systems Engineering

Assistant Professor

Good academic record with a Doctorate Degree in Engineering/Technology. About 5 years experience of teaching and/or research and development on research problems connected with Energy like energy sources (conventional or non-conventional, energy systems, energy conversion etc.

Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in an Institution or in an Industry.

Persons with Ph.D. in applied sciences may also be considered if they have sufficient research experience in the field of energy.

Lecturer

Master's Degree in Engineering/Technology. One year's experience on research problems connected with energy.

Persons with Ph.D. in applied scienees may also be considered if they have sufficient research experience in the field of energy.

3. Environmental Engineering

Assistant Professor

Applicant should have consistently excellent academic record with Doctorate Degree in Environmental Engineering with Bachelor's degree in Civil Engineering from a recognised University/Institute. Minimum 5 years' experience in teaching/research/industry. Experience of carrying out independent research and of guiding research desirable.

Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in an Institution or in an Industry.

4. Industrial Design Centre

Assistant Professor

(i) **In Visual Communication**

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Should have to his credit considerable research work on Communication; and ability to develop areas such as information graphics, knowledge of typography, scientific diagrams and flair for creativity desirable.

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Peerzada Ghulam Hassan
SPECIAL OFFICER

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Mahmood Ali
REGISTRAR

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A.N. Bhargava
REGISTRAR

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University News

FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH DECEMBER 15, 1981

Dr. M.S. Swaminathan, Air Chief Marshal Arjan Singh and Prof. O.P. Jain at the Convocation of the Indian Institute of Technology held recently in New Delhi.

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UNIVERSITY NEWS

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Editor : ANJNI KUMAR

Weakness of Affiliating University

G. Ramakrishnan

All the Indian universities, except a few, are affiliating universities. When they were started, their main function was drawing up syllabuses and conducting examinations. The actual academic work was done in the colleges. While this system was adequate for the needs of the economy and society at that time, it can no longer cater to the requirements of higher education today. The university all over the world has undergone teremendous changes. In the West, higher education has become a complex phenomenon making the university into a megavarsity or multivarsity. In India too universities have experienced enormous growth.

Before the advent of the Industrial Revolution, universities were very small restricting their studies to law, history, literature, philosophy and some science. Harvard University was Harvard College at the time of its founding in 1636. Rapid expansion of the university is a recent development. This has resulted in a whole range of new issues to be faced. The structures that govern the universities when they were small have continued to this day. In addition to these general characteristics of higher education in every country, the Indian universities have to shoulder the burden of providing affiliation to colleges. In the initial stages, when they began to expand their own academic programmes, it was within their administrative capacity to look after the colleges. Now the situation has changed completely. Every university has several departments offering full-time courses besides numerous other programmes like seminars, short term courses. workshops and so on. As the technical sophistication of the development process catches up, every sector of soceity will require persons trained at the university level. This means the university has to become bigger and bigger. It should reorient its strategy to face the new challenges of growth.

As India's agricultural and industrial sectors are getting modernised, they have begun to call for new research and development in various fields. We are witnessing rapid advancement in urbanisation leading to massive problems in housing. transportation, water supply, provision of electricity and a host of other urban facilities. All these prob-

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**Research Associate, Institute for Development Education, Madras.*

lems require research and development on an appropriate scale. While there are specialised organisations created for R and D in different fields such as ICAR, CSIR, AEC and ICMR, some R and D work is also being undertaken in the universities. If more of R and D work is transferred to the universities, specialised organisations can concentrate on higher levels of policy making and long term planning. It is the university which offers the ideal setting for interdisciplinary work which has become imperative in the face of the variety and complexity of contemporary problems. True to its name the university should become universal in its scope.

With its vastly expanded programme of research and education, the university should necessarily concentrate on its postgraduate and doctoral levels. In India after the postgraduate degree, research undertaken for the doctoral degree and beyond has been going at a slow pace. Considering the number of graduates and post-graduates turned out by the universities, the output of Ph.Ds is very small. The main reason for this is the inadequate attention and resources and the absence of a well drawn up scheme of doctoral work to be finished within a specific period. The Carnegie Commission on Higher Education [has suggested in report *Less time, More options* four year Ph.D. programme after a bachelor's degree. The Indian universities also can take bachelor's degree candidates after a test and interview and give them a strong and well-structured Ph.D. programme with a flexible combination of course work and dissertation. Utmost care should be taken to maintain the academic quality of Ph.Ds who will be required to initiate similar programmes in several universities and colleges. This strategy will succeed only if the university mobilises itself to the maximum for this altogether new and tough task.

When the universities launch on a big doctoral programme, in the initial stages they will find it difficult to manage with their available faculty and administrative strength. This difficulty can be overcome if the university sheds its traditional function of providing affiliation to a large number of colleges located in different places. Presently the affiliating system detracts from the main function of teaching at the higher levels and research of the university. However from the financial point of view affiliation has been helpful to the university by way of affiliation, examination and registration fees. As mentioned earlier when the specialised research organisations transfer a considerable portion of the work done by them to the universities, the financial loss can be compensated. Moreover, sponsored research undertaken for the industry will add to the financial strength of the university.

Besides weakening the universities, the affiliation system has not in any considerable way improved the standards of the colleges. Colleges routinely adhere to some of the procedures of the university and do not strive to do anything beyond it. There is also a widespread tendency on the part of the colleges to flaunt the affiliation to a particular university and keep the academic performance to the minimum required by the university. Some colleges have maintained outstanding academic records because they have had an established tradition for it and a continuing availability of able men.

It is the primary function of higher education to supply innovative leaders to a wide variety of national tasks. Though it is a fact that it is constrained by financial and other factors, it must set an example to other sectors of the society by the effective use of the resources available to it. If the universities produce enough men of merit, they become available to fill the departments of colleges leading to better leadership for their independent functioning. In India colleges should progressive by achieve higher standards to make quality higher education available to a greater percentage of the age group. As Clark Kerr has pointed out, the general test of higher education is not how much is done poorly, rather it is how much is done superbly.

This test of higher education is equally valid for India. As in other fields of life, education will also present a variety of standards. This variety is largely the function of socio-economic development the country has reached. Higher standards will become visible as the geographical spread of the highly competent men catches up. This means, as a result of the vastly improved productivity of the universities, every college in the country will be led by a man who is good enough to be a vice-chancellor of a university.

The universities and colleges should become parallel and interacting elements of higher education. The commitment of a university is to advanced research. The commitment of a college is to widespread access to higher education. These two commitments combine quality and equality to make higher education serve the democratic and intellectual requirements of the society. □

[Courtesy: The Hindu]

Importance and Development of Creativity

B.K. Passi*
Gurpal Singh Jarial**

Commenting upon the importance given to creativity in the recent times, Guilford (1962), says that "in the part of our Zeitgeist pertaining to psychology and education, no word has had a more dramatic rise in popularity than *creativity.*" He further says that "the interest in this subject is international, as well it might be." Indeed, the importance of creativity is manifold. At one point it helps the individual in his adaptations and adjustments and on the other hand it is responsible for the progress and prosperity of the society and nation at large.

The person who possesses the creative talent is highly benefitted by it. The possession of creative talent itself is a matter of pride. In this respect Bruner (1962) says that "man's creative abilities restore his dignity in computer dominated age." Getzel and Jackson (1962) regard one's creativity as "one of the most highly valued qualities of human beings." Haefele (1962) believes that "Creativity at the highest level is the greatest of all human ecstasies and often brings moments of high personal drama." Toynbee (1964) considers creativity as "man's greatest asset", and Taylor (1964) declares it as "a quality which is vital to the shaping of man's future "

Better adjustments as well as adaptations to the changing environment demand for creative minds. Considering creativity as "one's most valued resource" Patrick (1955) believes that "creativity is responsible for man's coping with life's daily stresses and stiffling of its cuts at the very roots "A similar view has been expressed by Rogers (1969), who believes that "in a time when knowledge, constructive and destructive is advancing by the most incredible leaps and bounds into a fantastic atomic age, genuinely creative adaptations seem to represent only the possibility that much can keep abreast of the kaleidoscopic change in this world..........unless man can make new and original adaptations to his environment as rapidly as his science can change the environment, our culture will perish. Not only individual maladjustment and group tensions, but international annihilation will be the price we pay for a lack of creativity " Torrance (1969), also, regards ones creativity as his "most valuable resource in coping with life's daily stresses." Patel and Ramchanderchar (1971) have highlighted the importance of creativity to the individual's progress and adjustment, saying that "if we look into the past, it becomes evident that man's progress has been marked by his creativity. Even the smallest of his adaptations to nature's challange have occurred in sudden leaps when they have taken shape for the first time." The authors believe that "these sudden leaps or expressions can be definitely termed as creative." Creative persons possess such traits of personality who make them healthy members of the society. Bruch (1981) believes that "creative persons are daring, courageous, progressive and risk taking. They are able to undergo psychic turbulence during the creative process when ambiguity and disordered ideas may be necessary before the emergence of the original reording of these thoughts of images." Highlighting the differential personality characteristics of creative persons, Torrance and Hall (1981) say that "highly creative people are, at the same time, more masculine and more feminine, more conforming and more non conforming, more independent and more playful, more timid and more bold, more certain and more uncertain, and, more receptive and more self acting than their less creative peers. They successfully integrate these polar opposits into their personalities and their thinking, and they seem to have an explainable ability to solve problems, that appear to defy logical and rational solutions."

The society, of which the creative person is a member, advances on account of the creative talent of its members. In his presidential address to the VIII All India Guidance Conference, held at Allahabad, Mohsin (1963) highlighted the importance of creativity to the society saying that "society consists of individuals, but it is only a few exceptionally talented and creative individuals, who contribute most to the growth of society. They create new horizons and set new standards in science, technology, literature, fine arts, business, industry and social leadership.

There is little doubt in the fact that the progress and prosperity of any civilization depends upon the creative imagination of its members. Toynbee (1964) says that "civilization arose because of the innovative responses of creative minority to the challenges of environment. All acts of social creation are the works either of individual creators or at the most of creative minorities." Springbelt (1957) has also expressed the similar viewpoint, saying that 'the development of our civilization depends upon new insights, fresh ideas and original productions, possessed by creative minority of our society."

Creative individuals lead the society in crucial moments. The important solutions to the political

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***Post-Doctoral Fellow, Department of Education, University of Indore.*

and social problems are suggested by the creative individuals only. Guilford (1959) has commented in this respect saying that "in a world grown small, so far as travel and communication are concerned, and a world in which the exploding population competes ever more strongly for its resources, adjustments in the political and personal relations areas call increasingly for imaginative solutions." He further says that "from any aspect we may view the scene, the needs for creatives are enormous."

Gowan (1981) has also highlighted the importance of creativity to the society, saying that "it is logical to expect that society will gain enough control of the situation to maximize consciously a continuing clustering of creative genius, which will produce a permanent and much enhanced renaissance. Indeed, the creatives are the assets to a society. The discussion on the importance of creativity to the society may be concluded in the words of Toynbee (1964), who says that "to give a fair chance to creative potential is a matter of life and death for any society. This is all important because the outstanding creative ability of a fairly small percentage of the population is mankind's ultimate asset and the only one with which man has been endowed."

Perhaps it is the nation, who enjoys most the fruits of the creative acts of its citizens. The advancements of a nation in all walks of life, i.e. poliical, economic, social, religious, scientific and technological, etc. rest on the shoulders of its creative people. Whatsoever may be the working field, creative people lead it to the peak of excellence. In this regard Mc Cord (1965) says that "whether they serve in government or factories, hospitals or universities, villages or business offices, creative leaders are solely needed for every society, particularly in a developing country, the economic innovator...... a man willing to introduce new techniques bears the risks of failure and assumes responsibility for change, must take the lead." He further feels that "creative men are urgently needed."

The advancement of a nation in the field of science and technology depends upon the amount and extent of creative powers possessed by its members. In this respect Guilford (1962) says that "we all know that the health of American economy has been given a great upward thrust by the introduction of some important innovations—the automobiles, the motion pictures, the television, and so on. The inventive thinking of a very few individuals was largely responsible in each case." The author further feels that "in order to ensure good health, economy will need many more creative minds at work with freedom to go where their hunches lead them." Wallace (1960), Torrance (1967) and Pillay (1978), have also highlighted the importance of contributions made by creatives in the scientific and technological advancement of a nation.

The growth and smooth running of different institutions and organizations looks for the services, management and leadership of creative persons. In this context Taylor (1964) says that "corporations and organizations to be an enduring enterprise, and to be oriented towards cooperative immortality, must adopt such measures that people endowed with creative potentiality rise to the top of the organization." Not only in the professions of high status, but even in those of common place occupations, such as, to be a clerk in the departmental store requires creative talent for its professional excellence (Torrance, 1967).

It is very much clear from the above discussion that the need for creatives is enormous. It is a healthy sign that the area of creativity is catching the sight of researchers in the recent times. Pagano (1979) has commented on the present state of affairs with respect to the general concern of human beings with this human attribute saying that "today many people are concerned with creativity. Persons responsible for planning for the future recognize the need to seek creative solutions to contemporary and future problems in the world. Scientists and researchers seek answer to difficult technical questions regarding innovative responses. Artists strive for creativity in aesthetic endeavours and educators are especially interested in the creative process as it is related to teaching and learning. Each of these groups realize the need to promote and encourage creativity." Hence, whatever may be the field of work, its excellence depends upon the creative imagination of the persons engaged in it. It is only due to the importance of creativity that 17 leading psychologists placed creativity and its cultivation at the top of a list of areas deserving the highest research priorities in the behavioural sciences (Smith, 1959).

Keeping in view the importance of creativity in all spheres, its identification and development should be given the top priority in the national planning of any country. But, unfortunately the state of affairs is not as such. The unconventional nature of the creatives, their questioning mind, and resistance to the acceptance of set patterns, is considered as a revolt against the society. Upto 1950 the area of creativity remained almost neglected in creativity research and it is only after this time that, a few efforts have been made in this direction. But inspite of it, the progress of research in the area of creativity is not satisfactory. Raina (1971) surveyed the psychological literature and observed that upto 1965 only 0.71% of the total psychological publications were contributed to creativity. Guilford (1957) is of the opinion that "education has emphasised abilities in the area of convergent thinking and evaluation, often at the expense of development in the area of divergent thinking. We have attempted to teach students how to arrive at correct answers that our civilization has taught us are correct. This is convergent thinking.........outside the arts, we have generally discouraged the development of divergent thinking abilities, unintentionally but effectively." In this respect, Klausmeier (1965) has drawn a very clear picture of the present day's classrooms saying that "visit the many high school classrooms now recognized for academically talented students, observe the content and method of instruction, you may experience the unconfortable feeling that perhaps the creative individuals of tomorrow

24 DEC 1981
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will not come from these classroom groups. There is a possibility that a large number of the creative individuals are somehow lost by the criteria used in selecting the academically talented and that, creativity in those identified is being submerged through instruction which focusses almost solely upon the acquisition of larger and larger masses of already known facts and tested methods." The similar viewpoint has also been expressed by Vernon (1950) who says that "the present system is criticised for favouring the confirmist's mentality. The pupil student who is good at accepting and learning what his teachers and lecturers tell him is considered to be a good student, whereas, it discourages spontaneous and independent thinking. Goyal (1973) is also of the view that "the death knell to creativity is run in our schools by laying too much emphasis on confirmity, rigidity, strict obedience and traditionalism." Raina (1975) is of the opinion that "in the schools only one talent, namely, academic talent is tried to be risen. The other talents are not paid adequate attention through curriculum, selection system, text books, classroom teaching and instructional technology."

The above viewpoints make it clear that creativity infact is considered to be a "stepchild to education". The teachers who are considered to be the builders of the nation are too passive towards this talent of the students, rather they try to encourage those behaviours of their students who are anti creative. In a study using the ideal pupil checklist by Torrance, Phatak (1964) observed that the qualities rated by the teachers of an ideal pupil were: curiosity, to do work in time, obedience, to be a self starter, self confidence, health, and courteousness. The traits of the students which these teachers considered punishable were: to disturb class organization, stubbornity, fault-finding, talkativeness, spirited in disagreement, occasional regression, and negativism. Raina's (1970) study using 40 prospective science teachers showed that they eulogised traits like curiosity, obedience, working on time, remembering well, self confidence, health, adventurousness, attempting difficult tasks and courteousness. They wanted to discourage such qualities as: disturbing class organization, nonconfirming, negativistic, stubborn, talkative, critical of others, bashful, spirited in disagreement and fault finding. Raina and Raina (1971), also, observed that in general the Indian teachers (Rajasthan) emphasised the receptive nature of pupils and de-emphasized the self acting nature. Not only the teachers but, even, the teacher educators are not aware of the what creativity is? Raina (1970) attempted to study the teacher educator's competency in creativity. It was observed that by and large teacher did not possess sufficient knowledge or they were not sufficiently aware about the creativity and creativity movement in the field of education and psychology. Lefrancois (1972) has given a very sarcastic account of the complacency of present teachers portrayed in the following words: "Creativity is that special quality in students that other teachers in other classrooms stifle. Other teachers are rigid, rule bound and authoritarian. They stifle creativity by insisting on excessive conformity to arbitrary regulations giving high grades for neat, correct unimaginative solutions to problems, executed and reported in exactly the prescribed manner and by refusing to admire the mistakeful groupings of a child reaching towards the unknown. They stifle creativity by forbidding spontaneity and by rewarding mediocrity. They crush the joyful inquisitiveness of young children by not hearing or not answering their questions. They are dry, sober, humourless, keepers, of the culture of their fathers." The teachers in the present classroom's follow a well-known set of behaviours. The teacher does most of the talking, controlling the classroom activity and the students are a group of relatively passive onlookers. He only asks those questions to which he has with him the already known answers. Research literature is full of the evidences that over ninety percent of the questions teachers ask, call only for the reproduction of information given in the text books. Buch (1975) is ofthe opinion that "open questions are rarely asked in our classrooms." George (1975) has observed that "most of the teachers are even ignorant about divergent, open questioning which is considered as one of the fourteen skills to be learnt and practised by teachers." Deshmukh (1980) in his doctoral study observed that the classroom teaching was very low on motivation and was purely teacher dictated and dominated. It was further observed that the classroom teaching provide less opportunities for student involvement and initiative and peer interaction resulting in low pupil interest. The teachers were observed to be nonresponsive and critical, and were found to discourage unusual ideas. On the whole the classroom teaching was convergent in nature.

It may be concluded from the present discussion that the present educational process, teaching process, teaching methods, textbooks, and teacher's behaviours are such that they hardly promote the behaviours related to the creative thinking abilities, rather they discourage it. Such practices indeed are not in the good of mankind, because they deprive the human beings from the usual development of their creative talents. Bloom (1956) is of the opinion that "there is some reason to believe that educational system can reduce originality and creativity. This negative effect on creativity is most marked when examinations, instructional materials and processes, all emphasize learning by rote and the goal is centered on getting through examinations."

But, what will be the ultimate result of the neglect of such an important human attribute. Although it is a well established fact that every normal human being is endowed with creative talent (Wilson, Guilford and Christensen, 1953; Guilford, 1956; Russell, 1957; Fleming and Fleming, 1958; Anderson, 1959, Klausmeier, 1965; Torrance, 1969; Foster, 1971; Passi, 1971; Prince, 1972; Simonton, 1974; Schwartz, 1974, 1977; Mehdi, 1975; Lewis, 1979; and Pagano, 1979), but its expression and further development depends upon the environment, facilities and opportunities provided to the subjects. Hence, if this talent is not given the proper attention, it will be very harmful to the humanity. In this respect Toynbee (1964) says that "if society fails to make the most of its human asset, or worse still it sets itself to stifle it, man is throwing away his birth right of being the lord of creation and is condemning himself to be instead the least effective species on the face of this planet." Hence, the development of creativity should be given the top priority in the national planning of any country, and there is no short cut to it, if a nation wants to glorify its present and future.

It may be considered as one of the most significant finding of psychological literature that every normal human being possesses the abilities to be involved in creative activity, and these abilities can be increased to a considerable extent. Rugg (1964) says that "no psychological finding of our age has had more far reaching influence in vitalizing the educational process than the discovery of the fact that children have creative abilities and that the school can help the child to develop these abilities."

The trainable nature of creativity has been highlighted by a number of researchers in the field of creativity. Guilford (1952) believes that "like most behaviours creative activity probably represents to some extent many learned skills. There may be limitations set on these skills by heredity, but I am convinced that through learning one can extend the skills within those limitations." Osborn (1966) is of the opinion that "by intelligent understanding, direction and exercise, creative power can actually be stimulated into growth." Torrance (1969) says that "everybody possesses to some extent the abilities involved in being creative. These abilities can be increased or decreased in the way, children are treated." DeBono (1970) believes that "lateral thinking is a skill closely related to creativity and still it is a skill, it can be mastered." The developable nature of creativity has also been highlighted by Mehdi (1975) who believes that "though it is difficult to turn each child into a creative person but each child during the period of his growth and development can be trained to think in a creative manner so that in one field or the other he may be able to make use of his creative talents." He further believes that "creative abilities can be developed to varying degrees among different individuals through a systematically organized programme of instruction." Anderson (1959), Maltzman, et. al. (1960), Rogers (1964), Parnes (1967), Schwartz (1974, 1977), Gowan and Olson (1979), and many other pioneers in the field of creativity research has, also, highlighted the trainable nature of creativity.

Commenting upon the effectiveness of various creativity developing procedures, Guilford (1962) says that "there is plenty of evidence that scores in tests of the components of fluency and flexibility can be raised as a consequence of taking a course in creative thinking. The results are not such as to make us expect miracles, but there is observable improvement. Students come away from such courses with more self-confidence and greater skill."

It may be concluded from the above discussion that creativity can be developed through deliberately developed procedures. In this respect three surveys have been conducted by Parnes (1967), Torrance (1972), and Mansfield et. al. (1978) to conclude upon the effectiveness of different procedures in the development of creativity. Of these, Parnes (1967) reviewed 40 studies designed to test the effectiveness of special programs developed to improve creative abilities. It was concluded that "approximately ninety percent of the total number indicate that subject's creative productivity levels were significantly increased by deliberate educational programs."

Torrance (1972), also conducted a comprehensive survey to answer the question "can we teach children to think creatively?" The survey was based on empirical evidences involving elementary and high school students. On the total 142 studies were reviewed. The studies were classified into nine categories according to the method of stimulating creativity employed. It was concluded that the success of the studies in developing the creativity of the students, ranged from 55 percent to 92 percent.

Commenting upon the success of different procedures and programmes to develop creativity, Torrance (1972) says that "the most successful approaches seem to be those that involve both cognitive and emotional functioning, provide adequate structure and motivation, practice and interaction with teachers and other children. Motivating and facilitating conditions certainly make a difference in creative functioning, but differences seems to be greatest and most predictable when deliberate teaching is involved.' Mansfield, Busse, and Krepelka (1978) reviewed over 65 studies, attempted to test the effectiveness of various special programmes for developing creativity. The authors concluded that inspite of the serious methodological limitations, the majority of the studies showed the effectiveness of various programmes in developing creativity.

The above discussion about the developmental aspect of creativity, indicates towards a clear cut possibility of the development of creativity through deliberately developed procedures. The different procedures which have been tried by the investigators to answer for the question of the development of creativity, and with respect to whom the investigations are going on, may be classified under the following heads :

(i) Special programmes for developing creativity : the Productive thinking program; the Purdue creative thinking program; the Myers-Torrance workbook program; the Khatena's training program; the Parne's program; the Wisconsin program; the Reading 360 program; the Montessori program; the Chicago inservice training kit; the scrambled text books program; the Jarial's instructional materials program; etc.

(ii) Techniques or developing creativity: Brainstorming; Synectics; Glasser's open ended class meetings; Morphological analysis; Buzz session; Black box technique; Role playing; Socio-drama; Reversal technique; Attri-

(*Continued on page 704*)

Need for improvement in quality of higher education

Convocation

The universities—are the nurseries from which such enlighttened leadership has to emerge. It won't grow as mushrooms without effort. Those with aspirations amongst you have to earn such positions through, imbibing scholarship, un-impeachable character and above all dedication as also devotion to causes which we all hold dear, nay sacred.

One of the means of accelerating the process of development is the spread of education to the masses on right lines. Democratisation of access to education is a very desirable goal. It is by no means the ultimate. We have to lay greater stress on improvement of the quality of education enveloping all aspects and all sections of our people.

To make good the accumulated neglect there must be a conscious effort to improve the quality of education imparted to the weaker sections of the community and our rural population. Where necessary we should introduce academic reforms which will ensure that education becomes relevant to the needs of the learners and the environment in which it is imparted. Remedial and enrichment programmes must be available to ensure that first generation learners and weaker students are adequately helped. The test of a good educational system is not so much its ability to impart education to the talented or above average students but its capacity to bring up the relatively weak and backward students to the desired levels which in this age of fierce competition must be high; high not in the percentage of marks attained through dilution of standards but in content.

There is no denying the fact that good University education is a powerful tool of national development as it provides the right kind of leadership. To be successful it must be instrumental in developing competent men and women responsive to the needs and aspirations of the community to man various professions and positions of trust and responsibility.

On the other hand if the quality of higher education is poor, it can lead a community to social, economic and moral disorganisation and decay.

The quality of higher education is therefore of vital significance. This quality in its turn depends to a great extent on the teachers. To improve standards in higher education the teachers must cultivate an idealism which would include a passionate love of learning, an indefatigable pursuit of excellence, a commitment to professional codes of conduct and a continuing and deep concern for the welfare of the students committed to their care. Our educational system can only serve as an instrument of change to meet the needs and aspirations of our people as a nation, if our teachers and students accept a commitment to honour such accepted national goals, as democracy secularism and socialsim. Our teachers, as a body, should be committed to these and other value systems which are our sacred heritage. Without this commitment on the part of our teachers and students it will not be possible to bring about the desired reforms in higher education or to use it as a vehicle for the onward march that we all passionately desire.

Higher education is not merely reading and cramming a few books or selected portions of books and obtaitning a degree. It is not stuffing the brain temporarily but training the same for lasting effect and thirst for knowledge. University education must awaken curiosity, promote self-study habits, sharpen intellectual faculties, develop problem solving abilities, inculcate values and attitudes which commit youngmen and women to humanism, pursuit of truth and excellence, freedom, equality, justice and mutual interdependence of the individual and the society. In the words of Pandit Jawaharlal Nehru "A University stands for humanism, for tolerance, for reason, for the adventure of ideas and for the search of truth. It stands for the onward march of the human race towards even higher objectives". These words highlight the basic truth that Univerisities have a crucial role to play in the life, well being and strength of the nation.

In the rapidly changing contemporary world, universities are undergoing a profound change in their scope, functions and organisations and are in the process of rapid evolution. Their tasks are no longer confined to the traditional functions of merely teaching and examining. While they are assuming new functions the older ones are increasing in range, depth and complexity. We have to keep pace with this change if we are not to be left out of the race.

Character building, including the inculcation of a sense of social responsibility, has always been regarded as the most fundamental and essential educational goal. Even the goal of economic growth cannot be achieved fully or satisfactorily unless and until a majority of the men and women who are in industries or professions, who look after our offices or establishments, or who work in the fields and the factories, are endowed with a strong moral fibre. Character building gains greater importance particularly today when the country seems to be caught in a crisis of character. In almost every walk of life we find that there is a glaring gap between the professions and practice of people. Ends and not means have assumed a pride of place. This is a pity as we are a people who boast of an heritage which shunned such an approach in dealing with individual, collective and national issues. It is only through a concerted programme of character building through sound education that we can hope to prepare a generation of people with character and courage to resist with strength and determination the ugly tendencies and unethical practices which are in evidence today.

It is a fact recognised the world over that teachers hold the key to character building of students committed to their care. What we need today in higher education is an adequate supply of competent and able teachers devoted to their profession who are a source of strength and inspiration to their students. They have to be men and women who are attuned to great ideals, and whose magnetism will do more good than all our textbooks and all our examinations; men and women who will impress upon the minds of the young students, that life is larger than livelihood, that the end of education is not gains in silver and gold, fame and power, but service and sacrifice. Such teachers are the real architects of our future. The work they do and the effect it has on future generations is rewarding and of an enduring nature. This they can achieve only through personal example. Their personal lives and actions have to be their silent message to their wards.

Teachers at all levels, and especially at the university level, are very advantageously placed in providing the necessary social and moral leadership to society. Their moral authority and commitment to ideals make them natural agents in shaping the destinies of the coming generations. However one cannot but feel that the teaching community as a whole in the country has not been able to exercise its moral and social authority adequately. Indeed, it is a matter of regret that there is hardly any movement of teachers in the country effective enough to ensure this. Despite the very large number of educational institutions and the outstanding talents that they have produced, there is little evidence of the teaching community influencing the course of events even in the spheres of education, let alone in relation to the national scene. To discharge this function properly the university teachers should cultivate not only intellectual integrity, courage and scientific knowledge but also win confidence of the public and more so of those entrusted to their care. Then only will they be able to exercise a sobering influence on the course of events outside the campuses of universities instead of outside events influencing or disrupting the peaceful academic life.

Today university teaching is done mainly in the form of lecturing and that too within the limits of the prescribed syllabi. This may be good from the point of view of passing an examination if that is what we deem as the aim of higher education. This, however, does not encourage self study, arouse the student's curiosity to look beyond the text-books or stimulate his intellectual faculties.

We have given a lot of attention to improving the system of higher education. Unfortunately, little or no thought has been given as to how best teaching ought to be done at our universities. The present day teaching leaves no scope for creativity and consequently, it is quite inadequate to meet the challenge of the times and changing dimensions of modern knowledge. Teaching techniques remaining almost primitive the teacher's major anxiety naturally is to complete the syllabus somehow and that too with a 20 hour academic week. It is necessary that teaching should aim at imparting strategies of learning. Student's own initiative to learn must be fostered and encouraged during the course of his education. The student has to be taught to explore the field of study on his own after he is given the necessary directions and guidance. Thereafter, day-to-day discussions will help in clearing various issues with which he is not in a position to come to grips. This pattern of education has practically disappeared from our universities. Its restoration is vital and so is the idea of prolonged academic weeks certainly not shorter than about 40 hours of effort per week. The advantages of such a change are obvious—the students would be seeking knowledge and by being busy for a major part of the day would remain aloof from undesirable and disturbing influences.

Every university should have a teacher education department with its teachers as students. Its central task should be to provide them with a sense of purpose and with a philosophy of education. This ultimately means developing teachers' ability and desire to think seriously, deeply and constantly. All said and done teachers can't be effective unless they continue to keep abreast of developments in their own fields of specialisation and this is not possible except through a continuous effort to learn. Indeed, members of faculties cannot touch the lives of their students unless their own lives have been touched; unless their own conception of education is reflected in the way they teach as well as in what they teach. Although it is unreasonable to expect every educator to be an inspiring teacher, let alone an inspiring human being, yet a serious attempt should be made to help teachers grow in ideas. In the words of Dr. Radhakrishnan, I quote : "We have not all the same gifts, but what is vital is not whether we are endowed with five talents or only one but how faithfully we have employed the trust committed to us. We must play our part manfully, be it great or small. Goodness denotes perfection of quality. However distasteful one's duty may be, one must be faithful to it even unto death".

As I have mentioned earlier we are committed to the goal of secularism. It is of paramount importance that our teachers and more so the students realise that different religions are but different and alternative paths that lead to the same goal. It is respect for all religions and mutual respect for the different religions that constitutes the essence of secularism. Acceptance of secularism implies that we respect each other's faith, tolerate the differences in their beliefs and accept the fundamental fraternity of all human beings. Our economic growth, political stability, social cohesion and national interests, all demand that we accept secularism and practise it as a way of life. Our universities have an important role to play in promoting secular attitudes among our students. The function of the university is not merely to produce technically skilled and professionally competent men and women but to produce in them the basic human qualities which enable individuals to treat one another in a democratic spirit. Mere acquisition of knowledge without the development of qualities of tolerance, compassion and mutual respect is of no value. No university can regard itself as serving its real purpose unless it sends out young men and women who are not only learned but whose hearts are full of values which we ought to cherish, among them being, love and compassion for humanity. The importance of education lies not merely in imbibing knowledge and skill but in being able to live in harmony with others.

Another important aspect which needs to be emphasised in our education is the link between the worlds of education and work. The adoption of productive work into the educational process as a means of enhancing the value of training and providing a proper preparation for working life are of great significance to us. Work-based education which will encourage earning while learning and which will be of service to the community must permeate the educational system at all levels. Apart from giving the needy students finances which they can utilise for meeting part of the expenses of their studies it would teach them the dignity of labour—a very desirable feature in our country. Students who are beneficiaries of this scheme, I am sure, would be able to face life with courage and self-confidence.

One of the disturbing features that has been plaguing the universities over the last few years has been the inordinate delay in the conduct of examinations causing considerable misery to the students and jeopardising their careers and future. The unfortunate fact is that in some cases students are a party, nay active participants, in creating situations which adversely affect their academic studies. Whatever may be the causes leading to this disturbing situations they should be fully analysed and solutions arrived at through a meaningful dialogue between the university administration, teaching and non-teaching staffs and the students so that none of them strays from his/her objectives and obligations. We should not do anything which would even remotely affect the future of our students and in turn our national interests. It is our duty to subjugate our personal and sectarian interests to the wider national interests. Let us create an atmosphere of mutual trust and confidence and collectively strive for giving a clean and efficient administration, the absence of which will negate everything that the universities stand for.

In many universities the actual number of working days during a session is far less than the stipulated 180 days. As a result, many of the facilities created at considerable cost to the public exchequer, remain unused or under utilised. The paradox of the Indian situation is that while on the one hand we are faced with the problem of providing facilities for higher education to many more deserving students, on the other hand the infrastructure created for higher education at considerable cost is not properly or fully utilised resulting in huge wastage of our national resources. Unless we remedy this situation we cannot expect a reasonable return on our heavy investments on higher education.

It is not given to all to go in for university education. The few years that you are privileged to spend in a college or a university are the golden period of your life. You have the option either to spend this time wisely or fritter it away in futile or disruptive pursuits. If you use every moment of your academic life to equip yourselves physically, intellectually and morally for the life ahead you will have the satisfaction of having spent your time most rewardingly. This would better equip you to serve your Motherland efficiently and effectively in your chosen field. On the other hand, if you waste your precious years in pursuits other than academic you will neither gain in stature nor will you be equipped to serve your fellow human beings or your country. This is the greatest disservice that you can do to yourself and more so to the society.

It is the duty of every educated man to extend a helping hand to as many as he can, to meet them in a spirit of sympathy and service, to look into their difficulties and problems and solve them to the best of his ability. A proverb says: "If you give a man a fish, he can eat it once; if you teach him to fish, he can eat fish for his life time". Even in the context of our country's present stage of development millions of our people are denied the benefit of education. Those of you who are fortunate in having the benefit of higher education should help their less fortunate brethren having no formal education by imparting knowledge to them. This exercise will increase their knowledge and skills which in turn will make their life more meaningful and rewarding. [*Excerpts from the convocation address delivered by Air Chief Marshal O. P. Mehra, Governor of Maharashtra at the Shivaji University*[.

Swaminathan calls for closer interaction between social scientists & technologists

It has often been remarked that while our country has reasonably well articulated goals in science, similar attention has not been paid to developing a suitable policy framework for technological advance and self-reliance. The former National Committee on Science & Technology and the present Science Advisory Committee to the Cabinet have hence analysed the issues which ought to find expression in a Technology Policy Statement. This will be submitted to Government soon.

While science helps to advance the frontiers of knowledge, it is science-based technology that helps to advance the frontiers of production and productivity. Also, unlike in science where the end result is often unpredictable, specific goals can be achieved through modern technology within a prescribed time frame. A classic example of such a possibility is the "Man on the Moon" project launched by the United States in the 1960's. Our own space programme falls under this category. When the late President Kennedy announced in the early 60's that an American should land on the moon before the end of that decade, there was considerable scepticism about the possibility of converting this political decision into reality. However, the feat was achieved well before the end of the decade.

A nation's capacity for self-reliance in industry, agriculture and infrastructure will depend to a great extent on the number of trained technologists and management experts it possesses. We are fortunate in this respect. Thanks to the vision of Jawaharlal Nehru and the early planners of technical education in our country, we have a large pool of scientists and technologists. The Indian Institutes of Technology have played a significant role in the field of manpower development. They also serve as outstanding examples of mutually beneficial international cooperation.

The impact of our technological capability is evident from the considerable diversification which has taken place during the last 30 years in the manufacturing industry, both small and big. We are now counted among the first ten industrialised countries of the world. Unfortunately, however, we rank very low in terms of per capita income. Large numbers of qualified engineers and diploma holders remain unemployed or inappropriately employed due to a mismatch between the available resources and trained manpower. This is unfortunate, since we know that we possess a large untapped production potential in nearly every sector of industry and agriculture. The Science Advisory Committee to Cabinet has developed proposals for bringing about a meaningful interaction between the untapped developmental opportunities, particularly in rural areas and the under-utilized institutional financial resources on the one hand and the unemployed scientists and technologists on the other. These proposals are under the consideration of Government and I hope decisions will be taken soon which will help us to derive benefit from the technical personnel now remaining unemployed.

Many of our bright young scholars from elite institutions like this one have taken employment in other countries. Calculations appear now and then on the cost of such brain drain from developed to developing countries, particularly in professional fields like engineering and medi cine. This problem cannot be solved by just decrying brain drain. What is important is the nurturing of a feeling in the minds of our students that they are wanted for performing essential tasks which can help to accelerate the pace of economic progress in our own country. Our educational system has by and large failed to transmit to young minds the challenges inherent in national building. Consequently there is no goal or mission in life. There is only fear of the prospect of unemployment and consequently we cannot blame young scholars for their quest for security through seeking jobs wherever they are available.

Technology to be successful must be compatible with the socio-cultural and institutional factors prevailing in an area. We are yet to give adequate attention to the substrate requirements for technological innovations and diffusion. Those in charge of technology development in our country must study from the beginning the potential impact of an innovation on employment, in addition to its economic viability, ecological soundness and energy requirements. Our population is expected to reach about 1100 million at the time this Institute celebrates its Golden Jubilee in 2011. We may be able to produce the food required for meeting the needs of this population provided we are able to provide the institutional support necessary for efficient small farm production. The dependency ratio, which currently stands at 0.84, will go down to about

0.60 in 50 years. This means there will be more people on the job market. Will we be able to provide jobs to everyone? Life has no meaning without work. Fighting the famine of work will, therefore, be the greatest challenge before our technological institutions. For winning this battle, employment generation policies will have to stem from scientific resource utilization strategies. This in turn will need detailed developmental balance-sheets for each district.

The employment impact statement which should accompany every proposal for introducing a new technology should pay specific attention to women's employment. Quite often rural and urban women are displaced from their traditional occupations through the introduction of new technology. An appropriate post-harvest technology could result in a large number of women employed in home vending becoming unemployed. In fact many technological innovations lead to the elimination of decentralised and labour intensive forms of production. I am glad that several of the innovations particularly with reference to technology for rural areas under development at this Institution, aim to bring about reduction in drudgery and diversification of labour use and not displacement of labour.

The other area which has received inadequate attention so far is the energy implication of technological change. Fortunately the high cost of fossil fuels has kindled widespread interest in this field. For example, we are building now several coal-based fertilizer factories to take advantage of our coal reserves. Much remains to be done in introducing energy consciousness in every field of technology development. This is particularly true with reference to rural occupations. A study in Gujarat has shown that about 20 to 50% saving could be effected with regard to the energy currently used for irrigation pumpsets through the adoption of a systems approach. Use of appropriate foot valve and strainer, suction and delivery pipes and prime mover can help to save considerable amounts of energy. Even in the Punjab where there is a greater degree of technological awareness in rural areas, the pump efficiency is only 40% according to a study conducted by the Punjab Agricultural University.

Energy consciousness is essential to-day in material development and product design. For example, the energy requirements for the manufacture of materials vary widely. Our country has to go in a big way for providing houses to the growing population. Before modern technology came in, the indigenous architectural design was adapted to derive maximum benefit from the sun and air. Unfortunately modern architecture including the design of buildings of technological institutions like this one, has necessitated the use of artificial light throughout the day. Had there been energy consciousness, the designs of Government buildings would have been different and artificial lighting would have been necessary only after sunset. In many developed countries, the energy involved in packaging food is more than the energy expanded in producing the food material contained in the packet. At least from now on, we must develop the habit of examining the energy implications of the different technological options we have.

Ecological considerations were also not integrated in the past with the process of technology development. We now know that the subsequent introduction of anti-pollution measures would be more expensive than the adoption of suitable designs from the beginning. Ecological economics has a time dimension of infinity and, therefore, calculations of cost-benefit relationships will have to be suitably adapted to bring about a harmony between short and long-term goals of development. Explosive progress is now taking place in different areas of technology development. Developments in the field of micro-electronics are opening up unusual possibilities in various spheres of human activity. There is also rapid progress in solar technology. Bio-technology including genetic engineering is opening up new vistas in biology, medicine and agriculture. We must develop the capacity to purchase time in the frontier areas of technology by suitably adapting new innovations to our requirements.

While attention to frontier areas of technology relevant to our own conditions is important, we must pay even greater attention to simple technological innovations which would enhance the quality of life of the rural and urban poor. A little greater attention to the tools used by rural women like the hoe and the sickle would help to improve energy conversion efficiency. Similarly simple methods of carrying goods in hilly terrain would make it unnecessary for loading the human back with heavy boxes and goods. As a part of rural extension work, it would be useful if simple methods of improving the efficiency of the implements and machinery used in villages could be demonstrated.

In the ultimate analysis, social acceptability will be the major determinant of technological change, particularly in the decentralised sector of production. It is the decentralised sector which provides the maximum number of jobs. Unfortunately technological support to this sector has been rather weak so far. The social engineering aspects of technology development will have to be kept in view if we want to make technology an instrument of socio-economic change. This would call for a closer interaction between social scientists and technologists. (*Excerpts from the convocation address delivered by Dr. M.S.* Swaminathan. *Member, Planning Commission at the IIT, Delhi.*)

Campus News

Jha suggests competitive exam after plus-two stage

Mr L.K. Jha, Chairman, Economic Administrative Reforms Commission, while delivering the Tenth Frank Moraes Memorial Lecture said in Madras that cutting of the nexus between university degrees and jobs was the most important reform which could lead to re-orientation of educational priorities. This proposal should be examined from its impact on several fronts. Under the present system of education, there was a qualitative imbalance between the supply of manpower from the educational system and the demand for different types of training and skills in an expanding economy. Perhaps, the most tragic aspect of the situation is that degree holders find it increasingly difficult to get employed, and at the same time, there is growing pressure for admission into colleges and a continued demand for opening new ones.

The educationists and economists pleaded in vain for vocationalisation of the education system. In consequence, more of the available resources for education got diverted to colleges than could be justified, while the spread of primary education got slowed down. The basic reason why there was such a lure for a degree was that for a vast number of jobs in Government, a degree was prescribed as the minimum qualification. He said a better alternative to the present system was to hold competitive examinations for students who had completed their plus-2 course. Those selected should be given a three-year degree level course in a specialised institution in subjects which would equip them for duties in public service. While he was not for turning these students into specialists, he felt they would be receiving education of a kind that was relevant to public services. After two years, the students would have to write a second examination on the results of which they would be allotted to different services.

This would make them compete with each other on terms of equality, while at present, students from metropolitan colleges had a distinct advantage over those hailing from backward areas. He said there was no reason why business establishments also could not adopt a somewhat similar system—and only those who had an academic bent of mind should go to the colleges. If this was accepted, the present rush for admissions to colleges would disappear. There would be a radical change in colleges and universities, as serious minded scholars became the main elements in the student population. The campus would not present situations which called for police to protect the Vice-Chancellor.

Those who had no serious interest in academic studies would in the changed conditions seek entry into vocational institutions which would provide specialised training in areas of self-employment and in subjects which would help them to find employment. Manpower planning will then come into its own. The requirement of training in different trades, skills and fields of knowledge would need to be calculated and appropriate facilities for education in them would have to be developed, keeping in view the importance of a reasonable balance between supply and demand in each area. Mr Jha made it clear that while advocating this change, he was not minimising the importance of general education. On the other hand, vocational training institutions should also have, as part of their curriculum, some courses which widen the vision of the candidates. Mr. Jha was of the opinion that a B.A. degree course should not be required as a pre-requisite for a study of law. It would be better to include English as a compulsory subject in the curriculum for a law degree. Conceding that his approach might appear revolutionary and might even be opposed on the grounds that we cannot afford to make experiments, Mr. Jha said, examples of the success of this approach were not lacking. A candidate after a few years in Government service could take a three-year course which should give him a bachelor's degree in administration. For entry into the Indian Economic Service, a good Economics degree should be a condition for eligibility. In addition, there should be room for induction of talent from outside into Government service at a higher level, from the age group of 30. But the prime emphasis would have to be on their past experience and performance. The adoption of this system would necessitate improving the standards of school education by reducing overcrowding, opening new schools in backward areas and providing them with better teachers.

Mr Jha said that prescribing a qualification which was not needed for a particular job would lead to a sense of frustration. In the field of medicine, he could not reconcile himself to the view that the MBBS course should be treated as the lowest level of education for all medical practitioners. There was a countrywide shortage of well qualified doctors and the unwillingness of young doctors to go to the rural areas fearing that their practice and chances of gaining experience would be very limited, had led to the emergence of quacks. Arrangements should be made to permit a licentiate in medicine to sit for the MBBS examination, after a special condensed course on completion of a minimum number of years of practice in rural areas. Calling for a wider debate on the educational system, Mr. Jha said there was a colossal waste of resources in subsidising higher education which gave no economic return either to the student or to the community and this could be eliminated. He said the Indian Institutes of Technology and Institutes of Managements offered courses which were employment-oriented.

Kashmir to have its own police force

The University of Kashmir has decided to organise its own police force on the campus to enforce law and order. The University Council has authorised the recruitment of university guards for this purpose. It would be an essential wing of the proctorial organisation. Initially the force would consist of 100 personnel out of which 50 would be from the regular police force and the remaining half would be from the watch and ward staff. The new force will replace the armed forces personnel which have been posted on the campus. The guards would act under the direct control of the university authorities and they would be asked to perform the following duties :

(a) Watch & Ward, protection of University property;

(b) Prevent entry of undesirables on University Campus;

(c) Prevention of the incidents of eve-teasing, ragging and other unruly behaviour;
(d) Prevention of the incidents of gambling, drinking, use of intoxicating drugs on the Campus.

(e) To defuse and contain situations arising out of gheraos, demonstrations and intimidation of University authorities, disturbance of teaching, examinations and other activities.

(f) Arrangement during large functions such as convocation, visits of dignitaries to the Campus, Sports events and Annual Functions etc.

The University Guard Unit would comprise one Chief Security Officer; one Asstt. Chief Security Officer; four Security Supervisors; ten Head Guards; and one hundred Guards.

An orientation courses would be arranged so that the University Guard personnel (Head guards and guards) be got acquainted with the culture and environment of the University.

The existing practice of recruiting Security guards from Ex-servicemen or retired hands from like organisations by the Universities would not be followed since it had created many functional and administrative problems. Therefore, the personnel of the University Guard Unit will be drawn from the agencies under State Government on deputation for a period of two years in the first instance. They would put on University uniform, would not carry arms, shall work under the direct control of the University; their transfers, writing of confidential reports etc. would be done by the Vice-Chancellor or his nominee on the advice of the Proctor.

Prof Mathur against pseudo-autonomy

Prof. M.V. Mathur, Honorary Professor Emeritus, National Institute of Educational Planning and Administration, visited Osmania University and spoke on 'Higher Education in India : Its Peculiarities and Problems'. While referring to the structure of universities in India, he said that the British model was still followed in India though it had been rejected in UK. The structural organisation of the universities has become disfunctional because the standard of average students in the universities and colleges have gone down. He suggested that the college teachers should be assessed at specific periods and if found unsuitable they may be discharged as was the practice in the armed forces. He suggested a faculty enrichment programme with academic resource centre to train and share academic activity. The teachers should be encouraged to write textbooks in Indian languages and this would improve the quality of books available to the students. Prof. Mathur was firmly of the opinion that the universities should be either directly under the control of the Government or under private management. There should be no 'Pseudo autonomy' of the universities which was being misused by the politicians.

Prof. G. Ram Reddy, Vice-Chancellor of the university said that the teachers had an important part to play in the development of higher education. They were responsible for the career of a large number of students and any mistake committed at the collegiate level cannot be corrected later on.

Panjab's incentives for the disabled

Mr Aminuddin Ahmad, Governor of Punjab, while inaugurating a 2-day Seminar on disabled persons at the Panjab University stressed the need for creating awareness among people for the social rehabilitation of the disabled. He said this could be done if various welfare agencies cooperated with the State Government in providing skills to the disabled which would enable them to make a living. The Governor said that efforts being made by the State in this direction were gratifying. Yet the various agencies and the State had to grapple with the problem to achieve more results. He said complexes were being set up in the State where skills like carpentary, furniture making etc.

were being imparted to the disabled who were working on part-time jobs and earning wages.

Prof. R.C. Paul, Vice-Chancellor, Panjab University, regretted that all scheme for the welfare of the disabled did not reach the rural areas. He urged the State and the private and public welfare institutions to create a climate where the disabled could be socially and psychologically rehabilitated. He announced that the Panjab University would provide facilities, incentives and encouragement to the disabled. Special incentives to the disabled include prizes, stipends and scholarships. The disabled will be honoured at the annual convocation for their academic and extra-curricular performances. To enable them to give expression to their creativity, the university will hold special functions and competitions in music, painting and art etc. The disabled would be provided financial help for crutches and hearing-aids etc.

The Law Department of the University also organised a seminar on legislative measures in this field. It arranged a declamation contest and door-to-door campaign for collecting funds. The university has also reserved 3 per cent of the seats in the first year semester for the physically handicapped.

Teaching of cartography in varsities

A three-day national cartographic conference was held in Calcutta. Over 200 experts attended. Dr. M.S. Swaminathan, Member, Planning Commission, while inaugurating the conference called for greater linkage of cartography to developmental programmes for a balanced economic and industrial growth of the country. He hoped that the conference would usher in a new era of cartographic development in this direction. Dr Swaminathan ceremonially released an agricultural resources atlas prepared by the National Atlas and Thematic Mapping Organisation.

Prof. S. Manzoor Alam, in his presidential address, said the problems of the country could be visualised in their totality when represented on map. There are no data that cannot be transformed into maps and there is no developmental problem of society which cannot be perceived over maps. He pleaded for a coordinated approach between the State boards of land use and cartographic agencies for planned and sustained agricultural growth. Prof. Alam said the immense expansion of the map-using clientele and the wide-ranging types of maps required to meet the developmental needs of the country called for a multiplication of agencies to impart advanced cartographic training and to produce maps. The Survey of India, the National Atlas and Thematic Mapping Organisation and the mapping unit of the Census of India were not enough to meet the growing needs of the diverse users of maps. He suggested creation of State atlas organisations and teaching of cartography in universities. He said technological revolution in surveying and mapping had given new dimensions to cartographic education and unless the university departments took note of this fact they could not develop a cartographic curriculum which will be modern in its outlook. He said we must develop the competence to transform serial photographs and satellite imageries into maps together with toposheets and interpret the physical, social and economic characteristics highlighted by them. Prof. Alam also called for a liberal policy of release of aerial photographs and said it is in the interest of advanced cartographic education in India that serial photographs of the non-sensitive areas are not held back from the academics and researchers who do not desire to remain ignorant of the problems of their own country and are keen to contribute to national development.

Advisory board on statistics to be set up

A national advisory board on statistics is to be set up soon to provide technical guidance on policy issue involving development of statistics. The proposed board will ensure better and effective coordination of statistical activities. The suggestion for setting up an apex body was made by a committee which had reviewed the national statistical system. The Director-General of the Central Statistical Organisation, Mr. K.C. Seal, said in New Delhi that the board would serve a useful purpose. The Planning Minister, Mr S.B. Chavan, in his inaugural address requested statisticians to take steps to ensure that data presentation was simple and easily understandable to the common man. He felt that electronic computers would have to play a larger role as manual and mechanical tabulation methods for processing the results of large scale census and surveys were not wholly adequate. Mr Chavan referred to grey areas where data were to be built up at national and also at the regional and sub-regional levels for detailed local planning. He said certain minimum items of information should be presented in all state statistical abstracts to build up an all-India picture and facilitate interstate comparisons on a regular lasis.

The statistical data base regarding social services like housing, educational facilities and other minimum and basic needs is relatively weak and should be improved. Besides census and sample surveys, administrative records and returns would have to be tapped to generate basic data as the cost of compiling statistics from this source might be only marginal. The minister stressed the urgent need for authentic and comprehensive information on the demand and consumption of different forms of energy. Data on items like firewood, agricultural waste and animal dung would have to be built up on sound statistical principles as these non-commercial forms of energy accounted for a substantial portion of the present level of consumption. Mr Chavan said special attention was given to environmental developmental efforts in the Sixth Plan. The data required for drawing up an appropriate environmental policy needed careful consideration.

Seminar on development of science and technology

The VI Indian Social Science Congress was held this year at Kanpur. A National Seminar on Social Perspective of Development of Science and Technology in India was also organised on this occasion. Inaugurating the VI Social Science Congress at the G.S.V.M. Medical College, Auditorium Prof. S.S. Mahapatra, said that Social Scientists and Scientists have a gigantic task of shaping the destiny of the people of India and discussed the role of Social Scientists in the Capitalist and the Socialists System. He said that though we cherished socialism yet our socialism was different. He urged upon the social scientists not to cling to the traditional old culture but to think about the modern culture which depended upon the integration of social forces. The presidential address was delivered by Prof. S.P. Das Gupta.

Speaking on "Social Perspective of Science Education" Prof. B. Ram Chandra Rao, Vice-Chairman, University Grants Commission, called upon the scientists to popularise science. He advised deletion of all obsolete material and induct new knowledge in science education.

Prof. S. Sampath in his valedictory address called upon the scientists and social scientists to make conscious efforts to develop a scientific approach in solving various problems faced by the country.

Prof Hegde defends continuance of English

Prof. K.S. Hegde, Vice-Chancellor of Mysore University said in Mysore that English remained as a complementary language in playing its destined role in uniting the people of not only our country but also the people of the world. He was presiding over the inaugural function of the three-day-long seminar on the role of English as a complementary language being organised by the Indian Association for Commonwealth Literature and Language Studies at Dhavanyaloka in Manasagangothri. He referred to attempts to have Hindi as a national language. He said those who had not been born to speak Hindi as mother tongue rightly and vigorously questioned the correctness of giving it the status of a national language. They averred that Kannada, Tamil or Telugu were as much a national language as Hindu. The question that arose was whether Hindi had to be made a complementary language or English had to be given that status. He was inclined to say English as a complementary language had to play its destined role in uniting the people. Prof. Hegde said if today English French and Portuguese were being spoken in a number of countries these languages had their origin in the imperialistic designs of these countries. If today English was universal it was because of the domination of the imperialist powers. If Napoleon had succeeded could English have a foothold in India or if in the recent years Hitler had his way would German have replaced English? We as practical humanists have to accept the accidental event of English having its foothold here. English had to be a language that served as a window to the people of the world. He made it clear that none were prepared to surrender the inheritance of our languages. About the purpose of the complementary languages he asked was it only for business, trade and travel or would it help us to deal with music, love or hate, sound and philosophy.

Dr. Wilfred Lehmann, Professor of Linguisitcs, Texas University who inaugurated the seminar said English as a world language had unique place. Underlying that the language was changing he said the word "airbus" was non-existent ten years ago and fifty years ago it had no meaning. Referring to what he called external influences, he said none in England knew the word Sputnik. This Russian term was widely used today.

Prof. C.D. Narasimaiah, Director of the Centre said the immense success of English which, like Hinduism, the only analogy he could think of for this phenomenon of English, was absorbent like the ocean it was all things to all men and in this sense English was probably more complementary than any other language in the world—the reason why it had emerged as the Pan-European language for European intellectuals, businessmen, burereaucrats and foreign servicemen.

Contract system for Tamil varsity teachers

The Tamil Nadu Education Minister, Mr C. Aranganayagam, while laying the foundation for the administrative block of the Perarignar Anna University of Technology (PAUT) at the Guindy Engineering College, said mere teaching and holding of examinations must not be the concern of universities. They must strive to expand knowledge and prove to be helpful to society by engaging in research relevant to its needs. The Minister wanted the University to be not just a combination of colleges but strike out new paths in technology to benefit society. Research work done here must also be made known to the outside world by good public relations work.

Dr. V.C. Kulandaiswamy, Vice-Chancellor, PAUT, made out a strong case for starting another engineering college in Madras and for putting up a faculty hostel with good amenities for the experts who visit the university from other countries.

Jiwaji organises seminar of librarians and library science teachers

A four-day seminar of librarians and library science teachers sponsored by the University Grants Commission was held at the Jiwaji University, Gwalior. Prof. P.N. Kaula, Dean, Faculty of Arts and Professor of Library Service and Information Science of the Banaras Hindu University presided. Prof. Kaula gave in brief the history of the development of academic and public libraries in the country and stressed on the importance and role of libraries in a social welfare state. Dr. K.K. Tiwari Vice-Chancellor of the University urged the librarians to accept their role in accelerating teaching and research in colleges and universities. He said that in order that academic libraries should function properly, it was necessary to have a quick system of book collections. The services of the libraries should be made available to the users in a scientific way. Dr S.M. Tripathi was the director of the seminar. About seventy participants from Madhya Pradesh, Uttar Pradesh, Andhra Pradesh, West Bengal, Maharashtra, Rajasthan and Delhi attended the seminar. The focus of discussion at the seminar was on (i) Resources sharing; (ii) Current Awareness Services; (iii) Library Science teaching based on clinical works in libraries; and (iv) Care and Preservation of Documents.

Bengal to set up open university

Mr Sambhu Ghosh, West Bengal Minister for Higher Education, said in Calcutta that the proposed open university in West Bengal will be modelled on the Open University of Milton Keynes in England. This project may open new possibilities for working youths in farms and factories and women who had to cut short their academic life for economic or social reasons. Sri Lanka and Pakistan have already introduced the British-model Open Universities. Explaining its salient features, the Minister said, it would be different from the conventional teaching-cum-examining universities in the sense that there will be no class rooms and no routine lectures. Yet students will get an opportunity to have higher education and to increase their job efficiency. The only prerequisite for the women entrants would be Madhyamik Examination certificates. For male students, it will also be necessary to be at least 20 years old and to be working regularly in a farm, factory or any establishment.

The Open University will send reading material and bulletins by post to students after enrolment. It will have regional offices in all districts and Study Centres would be set up in different thana areas. Scholars in different subjects would discuss and explain individual subjects through the television and also over the radio at a particular hour. For those who would fail to follow the TV or radio-talk, part-time adademics would hold special classes at selected places on Saturdays and Sundays. The Minister said that finance would be no problem. But much would depend on the co-operation extended by the Centre in this regard.

Bengal universities hard-hit for funds

Developmental schemes of West Bengal Universities including a new campus for Calcutta University are likely to suffer due to the delay by the University Grants Commission to make higher allocations during the Sixth Plan. Mr Sambhu Ghosh, Minister for Higher Education, said in Calcutta that the University Grants Commission had been approached to sanction Rs 12 crores for the six state universities. But it seems that not more than 50% of what has been asked for would be released. Mr Ghosh said that the building of a new campus of Calcutta University at the Alipore Central Jail site would also be hindered in the absence of Commission's assistance. The State Government was finding it difficult to bear expenses towards acquisition of books and journals for the universities. The UGC has however agreed to grant separate financial assistance for the development of Vidyasagar University. The Commission has also assured the necessary funds for certain specialised projects of Calcutta University including creation and strengthening of the departments of Marine Science Biophysics, Molecular Biology and Computer Science. The instrumentation centre of the university would also get some additional grants.

Streamlining in Dharwad

Dr. D. M. Nanjundappa, Vice-Chancellor of Karnatak University has established a Planning Board in the University. The Board will undertake to prepare a ten-year plan of development of the university as well as its annual plans. A master maintenance plan will also be prepared. The Board will be helping in the preparation of the case of the university before the State Government and the University Grants Commission. In addition it will undertake such other duties and functions as are referred to it by the Vice-Chancellor or the Syndicate from time to time. A special cell has also been established to look into the welfare of scheduled caste and scheduled tribe students of the university. The cell will also ascertain the government rules regarding reservation for weaker section of the society.

The university science laboratories have been provided with a special grant of Rs 10 lakhs for their renovations. In the postgraduate departments the headship is now by rotation. The scheme of merit promotion for the teaching cadre has also been accepted.

Tamil Nadu to introduce vocational subjects

The Tamil Nadu Education Minister, Mr C. Aranganayagam, said in Madras that the University Grants Commission had suggested restructuring of the degree course syllabus by including a job-oriented subject as one of the three subjects at the undergraduate level. The minister was inaugurating the Bhavan's College of Mass Communication. He stressed the importance of changing the degree-level education in such a way as to develop the students' skill through job-oriented subjects like journalism, public relations, business management, text-books production etc. This would enable a student get a job easily as soon as he got his degree than those degree-holders under the present curriculum. The Minister said such a shift in the educational pattern would also help to solve student unrest, since the existing system only led to frustration and disappointment among students caused by unemployment and under-employment.

International course in Roorkee Varsity

The civil engineering department of the University of Roorkee is organising an international course in collaboration with UNESCO. Persons from Iran, Afghanistan, Pakistan Nepal and Bangla Desh apart from several organisations within the country would be attending this course.

To check vibration losses with a view to disseminate know-how in this field among the developing countries the civil engineering department of the University of Roorkee which is the largest and oldest department in the entire developing world has perfected fool-proof technique.

Foundation supporting engines, compressors, radar towers turbines, large electric motors and generators etc. are subjected to vibrations caused by unbalanced machine forces. The course will be of a special significance for personnel working in this area.

Osmania introduces diploma in theatre arts

A two-year part-time diploma course in Theatre Arts is being introduced by Osmania University from this session. Graduates in any subject with at least 40 per cent marks in aggregate and having knowledge of Telugu plus some stage experience would be eligible for this course. An entrance examination will be held for the selection of candidates. At the end there will also be an interview. In any case due weightage will be given for experience in Theatrer Arts.

Osmania organises NSS camps

Over 1200 students of Osmania University are participating in the Special Winter Camping Programme conducted by National Service Scheme of University. Student volunteers from 32 colleges are taking part in the ten-day camps. During the camps, the NSS volunteers will undertake various development projects under the theme, "Youth for Rural Reconstruction". They would be constructing houses, raising electric poles in Harijan Wadas and laying of approach roads to villages and well-digging in tribal areas. The students will also undertake family welfare, adult education, medical check-up programmes, with the cooperation of local organisations. Stress will be laid on ecological awareness in the villages.

Research on pollutants

The Council of Scientific and Industrial Research has sanctioned a sum of Rs 1-lakh for research project to be conducted by Dr B.S. Ahuja and Dr T.A. Sarma of the Chemistry and Botany Departments respectively of Punjabi University. The project is aimed at the study of biochemical aspects of pollutants and radiation effects on plants.

To Our Readers

To meet partially the rising cost of production it has been decided to increase the subscription rates of UNIVERSITY NEWS from 1.1.1982. The revised rates are :

		Foreign	
Years	**Inland (Rs.)**	**Surface Mail (Rs.)**	**Air Mail (Rs.)**
1 year	**24.00**	**100.00**	**180.00**
2 years	**40.00**	**180.00**	**330.00**
3 years	**54.00**	**250.00**	**470.00**
5 years	**80.00**		
Single copy	**1.25**	**5.00**	**10.00**

Tamil studies at Warsaw varsity

Teaching of Tamil language and literature will soon be started in Warsaw University. Dr R. Parthasarthy, writer of short-stories and novels in Tamil will soon be leaving for Warsaw to take the assignment under the recent Indo-Polish Cultural Programme. He will be in Warsaw for a period of two years. The study of Tamil language and literature under the Department of Indological Studies in Warsaw University was first started in 1972 when a Tamil lecturer from Annamalai University, Mr. Sundaram was deputed.

Calcutta for computerisation of results

Mr. G. Banerjee, Controller of Examinations, said in Calcutta that the University proposes to computerise the compilation of results from the examinations of 1982. He said that the delay in the publications of results of Calcutta University was mainly due to the dual system; both manual and computer which was now being experimented. Mr Banerjee was of the opinion that errors and chances of tampering were eliminated in the computerising process.

AMU administrative building nearing completion

The Aligarh Muslim University will soon have a four-storeyed administrative block ready for occupation. This addition will, to some extent, relieve the pressure for the residence of students as a number of rooms in the present administrative block would be utilised for providing accommodation to students. The University Grants Commission has also agreed to provide necesary financial assistance for the residence of five hundred students. The university has accordingly framed a plan for providing accommodation for three thousand students over the plan period in a phased manner.

Science & Technology

Scientists to prepare ocean profile

A major scientific expedition of the Indian Ocean is being launched as part of its oceanic research programme of the Government of India. A Norwegian ship, chartered for this challenging cruise, will leave Goa with 20 scientists and a crew of 11, and will have two helicopters on board. The ship, "Polar Circle" will be fitted with sophisticated equipment for the cruise. This will be a probing exercise to study all factors relating to the Indian Ocean and monsoons and help build a profile of all sea-bed resources, living and mineral.

Dr. S.Z. Qasim, Secretary of the newly-created Department of Environment and former Director of the National Institute of Oceanography (NIO), will lead the expedition. It will not only map the sea bed down to the farthest region of the Indian Ocean, but also study the energy transfer mechanism from warm to cold waters and other scientific aspects. It will observe wind currents and direction, ocean temperature, humidity and surface ozone, that is, factors relating to monsoon on which India is critically dependent.

The Norwegian ship has experience of expeditions to Arctic and Antarctica. Developing countries like Chile and Argentina have already conducted expeditions to Antarctica, the "coldest, highest, driest, windiest and least accessible of all continents." China has announced it will send an expedition to Antarctica early next year. India plans to launch future expeditions with its own ship by acquiring a West German research vessel which will be ready in 1983. The Rs 2-crore Indian cruise will take some 70 days both ways, including 15 days in the icy zone near Antarctica. Scientists from half a dozen organisations including NIO, Indian Institute of Geomagnetism, the Meteorological Department and the Geological Survey of India form part of the team which also includes geologists, biologists and physicists. Indian science has developed expertise in all these branches as well as space and communications to take up detailed scientific studies in the Indian Ocean and seas around Antarctica.

One of the objectives of the expedition will be to look for samples containing evidence that Africa, Australia, South America, Antarctica and India formed one solid mass of land which later drifted into different regions over millions of years. Scientists are interested in Antarctica because it is a stable platform untouched by man and far away from industry and pollution. They are also attracted by the sixth continent's vast natural resources. It has enough krill (shrimp) to double the world's fish catch, offshore oil as much as in Alaska, besides iron ore, coal, copper, uranium and other minerals. Spanning one-tenth of the world's land surface, Antarctica is covered with ice which in some places is 4.5 km thick. Winds exceed 300 km per hour and the world's lowest temperature (—88 Degree C) has been recorded there.

News from Abroad

Commonwealth scholars in Britain

With £4,750,000 (about Rs. 8 crores) from the Foreign and Commonwealth Office and the Overseas Development Administration to fund its awards, the Commonwealth Scholarship Commission has been able to provide more than 280 new Commonwealth scholars and 70 new fellows. This is a significant in the face of the rising costs of post-graduate education. The students, who come from 43 Commonwealth countries like Antigua, Zambia, India, Singapore and Canada, have joined about 300 others already in Britain now entering their second or subsequent year of study under the scheme. They are among 1,000 students worldwide at post-graduate and fellowship level who are benefiting from the awards offered by 15 Commonwealth countries to people within the 45-strong family of nations.

British universities and other centres of higher education in UK are keen to have Commonwealth scholars because their intellectual standards and level of commitment are usually so high.

The main aim has been to select people most likely to succeed in their special fields, who will make a distinctive contribution to life in their own countries and to mutual understanding within the Commonwealth. The fields of study currently being pursued reflect the changing needs of the various countries to a large extent. Developmental studies, civil engineering, town and country planning, biology and many related subjects feature prominently amongst the interests of this year's intake. As the plan is an academic one and not an aid programme, it also extends to students of such subjects as music, philosophy, theology, history of art, and the classics. For the same reason, it is open to scholars from developed countries as well as to those from the developing world.

Agreement on running of British libraries in India

The nine libraries run by the British Council in India have a combined stock of 230,000 up-to-date British books, particularly in developmental fields such as science, technology, medicine and management, besides substantial collections on English literature and other subjects. There are more than 30,000 subscribing members.

The libraries provide a highly efficient lending library service and together account for about 1,000,000 book loans for home reading annually. They also make available up-to-date reference books and periodicals, and offer a wide range of information. The stock and information services of the British Council Libraries in Delhi, Bombay, Calcutta and Madras (which together with the British Libraries have a total stock of 500,000 volumes) are readily accessible, and there is a computer-produced union catalogue of new additions.

New range of teaching aids

Tecquipment International Ltd., a British firm, which has worldwide markets in education and training aids for secondary schools, polytechnics and universities, will follow up projects of the British Council currently going ahead in India. They will also be introducing some new items—a range of experiments for colleges and universities. Tecquipment has experience of 20 years developing teaching and training methods for a wide range of engineering, science and technological disciplines. The current range of 400 products meets the needs of all levels of teaching—from schools and vocational training centres to the most advanced levels of university teaching and military training.

Overseas research students awards

The Committee of Vice-Chancellors and Principals (CVCP) of the Universities of the United Kingdom has announced that some 500 new Overseas Research Students (ORS) awards will be offered on a competitive basis in 1982 to overseas postgraduate research students of outstanding merit and research potential for study in the U.K.

The awards, which provide partial fee remission, are given under the British Overseas Research Students fees support scheme set up in November 1979 by the Secretary of State for Education and Science. Each award covers the difference between the tuition fee for a home postgraduate student and the "full cost" fee chargeable to an overseas postgraduate student during 1981 Fortyfive students from India received these awards. The awards are tenable at any of 97 academic institutions including (i)— the universities in Great Britain (ii) the London and Manchester Business Schools (iii) the Royal College of Art and (iv) the Cranfield Institute of Technology. They are given to individuals, and may be held in any field of study. Subject to the satisfactory progress of the award-holder, they will be renewed for a second and third year, depending upon the normal duration of the research course being undertaken. The CVCP—which administers the scheme—has appointed a special committee, composed of representative senior members of academic staffs of the academic institutions, to be responsible for the selection of award-holders and for the detailed management of the scheme.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Agarwal, Usha Rani. Motion of two rigid bodies. University of Delhi.

2. Akolia, G.M. Study of causality condition in the space time manifold. Bhavnagar University.

3. Annapurna, M. Role of the free gravitational field in spherical gravitational collapse. Bhavnagar University.

4. Chawla, Amar Nath. Some problems in non-linear theory of elasticity. Panjab University.

5. Chopra, Reva. Finite operator calculus and some Appell and Sheffer sets of polynomials. University of Delhi.

6. Gupta, Mishri Lal. Stability of dusty flows. Meerut University.

7. Gupta, Ram Ratan. Summability methods and their applications. Awadhesh Pratap Singh University.

8. Indira, N. A-Cardinal splines. University of Kerala.

9. Jai Ram. Jacobsod radical of skew polynomial ring and of the fixed ring of automorphism. Panjab University.

10. Jain, Ramesh Chandra, Role of regularly open sets in general topology. Meerut University.

11. Kachot, K.R. Cylindrically symmetric fields and the principle of linear superposition in general relativity. Bhavnagar University.

12. Khanna, Ravinder Kumar. A study of Gray codes and codes in group algebras. University of Delhi.

13. Keranne, Vasant-Devidas. Application of transform methods in integral equations and self reciprocal functions. Nagpur University.

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———*Educational administration in Manipur : A survey report.* Delhi, Author, 1980. vii, 59p.

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———*Educational administration in Punjab : A survey report.* Delhi, Author, 1979. ii, 57p.

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———*European expert meeting on the forms of autodidactic learning : Final report and recommendations.* Paris, Author, 1980. 179p.

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UTKAL UNIVERSITY
VANI VIHAR, BHUBANESWAR

Advertisement No. Estt-I/886-C/32416 **Dated 1.12.81**

Applications in seven copies are invited in the prescribed form alongwith attested copies of certificate and marklists of all examinations passed for the following posts of Readers of the P.G. Departments of the University on or before **25th December, 1981.**

Sl.No.	P.G. Department	Post No.	Specialisation
1.	Chemistry	Reader (substantive) 1	Physical Chemistry
2.	Psychology	Reader (temporary) 1	Comparative or Physiological or Experimental Psychology.
3.	LL.M.	Reader (substantive) 2	(a) For one post. Criminal Law, Constitutional Law or Labour Law, (b) For the other post. taxation, Commercial Law or Personal Law.

1. **Scale of Pay**
   Reader: Rs. 1200-50-1300-60-1900/-
2. **Age of Superannuation : 60 years**
3. **Essential Qualification**
   (a) Reader: The Reader shall have :
   - (i) A good academic record with a First or High Second Class Master's Degree in the subject. In cases of otherwise suitably qualified candidates, the High Second Class at M.A / M.Sc. may not be insisted upon.
   - (ii) A doctorate degree or published work of equivalent standard.
   - (iii) Independent published research work (in addition to the published work mentioned in ii above).
   - (iv) Teaching and research experience for eight years out of which at least five years should have been spent in regular teaching in Post-graduate/Hons Classes, Capacity to guide research shall be regarded as an additional qualification.

   (b) **Reader (LL.M.)** The Reader shall have :
   - (i) A good academic record with a First or a High Second Class Master's Degree in subject. In cases of otherwise suitable qualified candidates, the High Second Class LL.M. may not be insisted upon.
   - (ii) Doctorate or adequate research experience.
   - (iii) Teaching and research experience for 8 years out of which at least five years should have been spent in regular teaching in Law Colleges or University Law Departments. Capacity to guide research shall be regarded as additional qualification.

Prescribed application forms can be had from the Registrar, Utkal University in person on payment of **Rs. 7.49** including local sales tax **(Rupees seven and paise fortynine)** only or by post on receipt of a Crossed Indian Postal Order for **Rs. 9/- (Rupees nine)** only payable to the Registrar, Utkal University, Vani Vihar, Bhubaneswar-751004.

S.K. Ray
REGISTRAR

BHAGALPUR UNIVERSITY
Advertisement Notice

(1) Applications on prescribed forms are invited from Indian Citizens for the following Posts under the Bhagalpur University Service in the scale of pay as mentioned below plus other allowances admissible as per rules of the Bhagalpur University.

Advt. No. 79/81—One permanent post of Reader in Botany with specialisation in Ecology.

" 80/81—One permanent post of Reader in Sanskrit.

" 81/81—Lecturer in Anthropology.

" 82/81—One permanent post of lecturer in History with specialisation in American History.

Corrigendum

(2) Last date for submission of applications for the post of lecturer in the following subjects is extended up-to-4 P.M. 22nd Dec., 1981 :

Subject	Advt: No.
Hindi	42/81
English	45/81
Bengali	46/81
Sociology	49/81
Geography	50/81
Psychology	51/81
Pol. Science	52/81
History	53/81
Economics	55/81
Mathematics.	56/81
Physics	59/81
Chemistry	60/81
Botany	61/81
Zoology	62/81

Scale of Pay & Minimum Qualifications for the Post of Reader/Professor.

Scale of Pay : Rs 1200-50-1300-60-1900.

Minimum Qualification

1. A first or High Second class Master's degree or equivalent degree of a foreign University in the subject concerned, with consistently good academic record, followed by a Doctor's degree and;

2. With atleast 5 years teaching experience in Post-graduate classes or 7 years teaching experience in Honours and Post-graduate classes taken together or 12 years teaching experience in degree classes.

Provided that the requirement of a first or High Second Class Master's degree for appointment to the post of Reader/Professor may be relaxed to bare second class in the case of a teacher who, apart from obtaining his own Ph.D. Degree has successfully guided research work leading to the award of Doctorate Degree or has published considerable research work in standard Journals beyond what he did for the Doctorate Degree and has put in at least eight years of teaching experience in the postgraduate classes or ten years of teaching experience in the Honours, or Honours and postgraduate classes taken together or fifteen years of teaching experience in degree classes.

Scale of Pay for the Post of Lecturer Rs. 700-40-1100-50-1600.

Minimum Qualifications (For the post of lecturer).

First or High Second class Master's degree or equivalent degree of a foreign University in the subject concerned with consistently good academic record followed by a Ph.D. or M.Phil. degree.

Provided that in case candidate with Ph.D. or M.Phil. degree is not available or not found suitable, preference will be given to candidate having consistently good academic record but such a candidate shall have to obtain Ph.D./M.Phil. failing which he shall cease to earn any future increment until he fulfils the requirements.

Reservation

Some posts are reserved for the candidates belonging to SC/ST/Backward classes/Women, and Economically backward class in the manner prescribed in the Statutes. In case no such suitable candidate is found the post will be converted into general post.

Note : (a) The candidates of the aforesaid categories while applying for the post must submit a caste certificate duly granted by D.M./Sub-Divisional Officer or any other Gazetted Officer duly authorised by the D.M. alongwith their application.

(b) Candidates belonging to Economically backward classes and backward classes while applying for the post must submit an affidavit to the effect that they do not pay Income Tax or Agricultural Income Tax. These facilities of reservation is admissible to only such families who, on the basis of their annual Income are exempted from paying Income Tax. Severe action under law would be taken against those who submit wrong affidavits.

Age Limit

No minimum age for any post has been prescribed but the age of supreannuation is 60 years.

Separate Application for each post accompanied with attested capies of Marks sheets, certificates and degrees from Matriculation owwards with a fee of **Rs 10/- (Rs 2.50 for SC/ST)** in the shape of crossed I.P.O's payable to registrar Bhagalpur University, Bhagalpur—812007 must reach the undersigned by **4 P.M. on or before 22nd Dec., 1981.** Those who have already applied in response to the last advertisement and corrigendum in the aforesaid subjects need not apply, other conditions of the advertisement will remain the same.

The Application Forms can be had from the office of the Registrar, Bhagalpur University on payment of **Rs 2/-** in cash at the counter or **Rs 5/-** for sending the same by post on self addressed envelope (23 cm x 10 cm) in the shape of crossed I.P.O. superscribed on the envelope "Application for the Post. Money Order/Cheque/Bank draft will not be accepted.

The applicant while applying for the post must mention on the Top of the envelope advertisement number and the no. of the post applied for in Block Letters.

Canvassing in any form will be Treated as a disqualification.

No T.A./C.A. will be admissible for attending the interview, if called for.

R.S. Singh
REGISTRAR

GUJARAT AGRICULTURAL UNIVERSITY

SARDAR KRISHINAGAR BANASKANTHA

NEEDS

Advertisement No. 9/81

Applications are invited for the post of Associate Extension Educationist "BAKING". The candidates who fulfil the qualifications and desire to apply may send their applications on plain papers with six copies of Biodata to the Registrar, Gujarat Agricultural University, Sardar Krishinagar, Dist : Banaskantha-385506 on or before **21-12-1981.**

Pay Scale : Rs. 1200-1900

Qualifications

1. Second class Bachelor's degree in the concerned faculty.
2. Second class Master's degree in the concerned field.
3. Ph.D. in the concerned field.
4. Diploma in Craftman Course in Bakery and Confectionary (Recognised by Deptt. of Technical Education).
5. Atleast 5 years experience of Bakery Science, Bakery Teaching, Bakery Production.

Age : Below 45 years.

Relaxation

1. Candidates with pass class either in bachelor's degree or in Master's degree (in any one) but having at least 10 years experience in extension faculty will be considered.
2. Ph.D. degree is relaxable in case of candidates having at least second class Master's degree in the concerned field with Ten years total experience.
3. Age relaxable in the case of outstanding candidates and in case of persons already in the employment of this University.

Note : Period spent under P.G. Training except in service P.G.—Training will not be considered as experience.

The candidates applying for the post will have to send an **I.P.O. of Rs. 10/-** in favour of "Comptroller, Gujarat Agricultural University, Sardar Krishinagar (Dantiwada)". The candidates already in the service of this University should send their applications without the I.P.O.

The candidates should send their applications through proper channel. All candidates called for interview will have to attend the same at their own cost.

REGISTRAR

UNIVERSITY OF POONA

GANESHKHIND, PUNE-411007

SYSTEM ANALYST—WANTED

Applications are invited for the post of System Analyst for computer work in University Administration in the scale of Rs. 1000-50-1500 plus allowances admissible under the rules. The candidate should have Master's Degree plus minimum four year's experience in design and implementation of complex data processing systems on a medium or a large computer system with a suitable operating systems. Ability to work independently and guide other staff. Knowledge of FORTRAN and/or COBOL is essential.

Knowledge of Marathi is desirable.

Applications, on plain paper, giving all the relevant information be sent to the Registrar so as to reach on or before **Satuaday, the 26th December 1981.**

The selected candidate will be required to join the duties immediately.

The deserving qualified and experienced candidate will be given higher starting salary.

S.P. Bhosale
REGISTRAR

NORTH-EASTERN HILL UNIVERSITY

LOWER LACHAUMIERE SHILLONG-793001

ADVERTISEMENT

Applications are invited for the following posts to work on a research Project entitled "Geomarphic Studies of some parts of Meghalaya" sponsored by Research & Development Organisation, Ministry of Defence, New Delhi for a period of three years.

(1) (a) **Senior Research Fellow** (one)—Rs 800/- per month (consolidated).

(b) **Junior Research Fellows** (two)—Rs 600/- per month (consolidated).

Qualifications—For post No. (1)(a)—M.A /M.Sc. Geography, with specialisation in Geomorphology and Climatology, M.Phil degree or minimum two years research experience (as evident by some publication or research papers) will be preferred.

For Post No. (1)(b)—M.A./M.Sc. Geography/Geology with specialisation in Geomorphology, Soil Geography, Climatology will be preferred.

(2) **One Field Assistant**—Rs 400/- per month (consolidated).

Qualifications—B.A. or equivalent, candidates with diploma in typing will be preferred.

Applications on plain paper giving full bio-data including qualifications, experience etc. together with a recent passport size photograph should reach Dr. R.K. Rai, Head—Geography Department, North-Eastern Hill University, Shillong-793004 on or before **30th December, 1981.** Selected candidates should prepare to join immediately. The S.R.F. and J.R.F. may register him/herself for Pre-Ph.D./Ph.D. degree of this University.

Mrs. M.R. Mawlong
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY
KANPUR

ADVERTISEMENT NO. 26/81

Applications are invited for three posts of Medical Officer in the Health Centre of the Institute in the scale of pay of Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200+NPA on slab basis and other allowances as admissible from time to time which at present correspond to those admissible to Central Government employees stationed at Kanpur. Higher initial start can be given to exceptionally qualified deserving candidates. Out of these three posts, one post is reserved for the candidates belonging to Scheduled Tribe community.

Qualifications & Experience

1. Candidate should be M.B.B.S. from a University recognised by Indian Medical Council and should be registered with any State Medical Council.
2. Minimum experience after obtaining the professional qualification should not be less than three years, preferably of having worked in a hospital. For exceptionally good candidates, the Selection Committee may relax the minimum experience requirement. Preference will be given to persons holding a post-graduate qualification.

Upper Age Limit : 45 Years on December 1, 1981

The posts are permanent and carry retirement benefits in the shape of CPF Scheme or CPF-cum-Gratuity Scheme or GPF--cum--Pension--cum--Gratuity Scheme as may be opted according to rules. The age of retirement is 60 years.

The Medical Officer will be required to stay in the Campus for which a rent free unfurnished residential accommodation will be provided to him in the Campus. Persons already in Govt. or Semi-Government organisations should apply through proper channel. Candidates called for interview will be paid second class railway fare from the place of duty to Kanpur and back by the shortest route.

Applications should be made on the prescribed forms obtainable free of cost from the Assistant Registrar (Rect. & Asmt.). Recruitment Section, Room No. 483, Faculty Building of the Institute by sending a self addressed unstamped envelope of 25 cm x 10 cm. size.

Applications accompanied by an Indian Postal Order in favour of Registrar, IITK for **Rs. 7.50 (Rs. 1.87** for Scheduled Caste/Scheduled Tribes candidates) alongwith true copies of educational and other certificates should be made and be sent to the Registrar, Indian Institute of Technology, Kanpur-208016 on or before **December 31, 1981.**

UNIVERSITY OF HYDERABAD

Advt. No. R/Dev/Rctt/T/4/81

Applications on the prescribed form are invited for the following posts in the University.

1. Professor of English
2. Professor of Chemistry
3. Reader in Mathematics
4. Lecturer in Life Sciences
5. Lecturer in Philosophy
6. Lecturer in Chemistry.

Scales of Pay

1. Professor : Rs. 1500-60-1800-100-2000-125/2-2500
2. **Reader :** Rs 1200-50-1300-60-1900
3. **Lecturer:** Rs. 700-40-1100-50-1600

Prescribed application forms along with particulars regarding qualifications, specialisations, etc. of each of the post and other particulars may be obtained either in person from the University office at 'Golden Threshold', Nampally Station Road, Hyderabad or by sending a self-addressed envelope (size: 9" x 4") affixing 0.75 paise postage stamps to the Deputy Registrar (Dev.), University of Hyderabad, Central University P.O. Hyderabad-500134.

The last date for receipt of requisitions for obtaining application form and other details is **24-12-1981.**

Applications duly completed with requisite Fee and other documents/certificates should reach Registrar, at the above address on or before **11-1-1982.**

P. V. George
REGISTRAR

GAUHATI UNIVERSITY
GAUHATI-781014

ADVERTISEMENT NO. 9 Of 1981

APPLICATIONS are invited for the following posts :

1. Lecturer in Chemistry—One post (temporary against the leave vacancy for 3 years).

Specialisation—Physical Chemistry.

2. Lecturer in Chemistry—One post (temporary) (but likely to become permanent).

Specialisation—Theoretical Chemistry. The candidates should be capable of teaching quantum Chemistry at the Post-graduate level.

3. Lecturer in Bengali—One post (temporary) (but likely to become permanent).

Specialisation—Vaisnava Literature or past. Tangorean Literature.

4. Lecturer in Sanskrit—One post (permanent).

Specialisation—Kavya (Sahitya).

5. Lecturer in Physics—One post (temporary against the leave vacancy).

Specialisation—Spectroscopy.

6. Lecturer in Arabic—One post (permanent).

Specialisation—Open.

7. Lecturer in Geology—One post (permanent).

Specialisation—Open.

8. Curator (Anthropological Museum)—One post (temporary).

Specialisation—In addition to usual qualification of Lecturer the candidate must have Master's Degree in Anthropology with experience of handling museum specimen in an Anthropological Museum.

Scale of Pay

Lecturer & Curator—Rs 700-40-1100-50-1600/-.

All posts carry usual allowances admissible under the Unversity rules in force from time to time.

Qualification : Lecturer and Curator :

(a) A Doctor's degree or research work of an equally high standard and (b) consistently good academic record with Ist or high second class (B) in the seven point scale Master's Degree in a relevant subject or an equivalent degree of a foreign University, having regard to the need for developing inter-disciplinary programmes, the degree in (a) and (b) above may be in relevant subject.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published

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CORRIGENDUM

BIRSA AGRICULTURAL UNIVERSITY, RANCHI, BIHAR.

The last date for submission of application against Advt. No. 4/81 has been extended upto **22nd December, 1981** (4th January, 1982 for candidates abroad), other details remain the same.

Dr. B. N. Sahai
Officer-in-charge
Recruitment Cell

work is of very high standard, it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's Degree or equivalent research work is not available or is not considered suitable a person possessing a consistently good academic record (weightage being given to M. Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research Laboratory/Organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Candidates for being eligible for requirement to the posts of Lecturers must have a Ist or High Second Class (B) In the seven point scale) at the Master's level and for determining consistently good record average of 50%—55% may be expected at the two examinations prior to the Master's examination.

Applications in plain paper in six copies giving full bio-data including (1) Name in full (in block letters). (2) Father's name. (3) Date of birth by the Christian era. (4) (a) Permanent residence and address (in full) (b) Present address (in full) (5) Present occupation if any and name of employer (6) Present salary drawn (if any) (7) Detailed academic career with marks sheets and subjects studied (including Honours) in degree and post-graduate courses from Matriculation/Higher Secondary/High School Leaving Certificate Examination onwards and copies/reprints of research contributions. (8) Name and address of two referees not related to candidate together with an application fee of **Rs. 10.00 (Rupees ten). (Rs.** 7.50. in case of S.C./S.T. candidates) by crossed Indian Postal Order drawn in favour of the Registrar, Gauhati University, payable at the Gauhati-781014 post office should be sent in an inner sealed cover superscribed application for the post of (name of post applied for). Advertisement No. 9 of 1981 enclosed in an outer sealed cover addressed to the Registrar Gauhati University Gauhati-781014 to reach him not later than **23rd December 1981.**

The number of this advertisement and name of the post applied for must be referred to in the application.

Persons in employment should apply through proper channel or with a no objection certificate from the present employer.

The University has accepted the principle of reservation of posts for Seheduled Tribe and Scheduled Caste candidates accordng to the norms of the State Govt. Candidates should submit necessary certificate from the Dy. Commissioner/District Magistrate if they belong to Scheduled Caste, or Scheduled Tribe.

Candidates will be required to appear at an interview if and when called for.

Canvassing directly or indirectly will be a disqualification.

Candidates who had applied earlier for the post of Lecturer in Bengali against Advertisement No. 6 of 1981 need not apply again.

M C. Bhuyan
REGISTRAR

Importance and Development of Creativity

(*Continued from page 682*)

bute listing; Checklist; Creativity mobilization technique; Programmed instruction; etc.

(iii) Training in Creative Reading, Creative Writing, Creative Aesthetics, Creative Arts, etc.

(iv) Curricular and Administrative arrangements.

(v) Teacher's classroom behaviour: his personality; his teaching method; his class control; his classroom's climate; etc.

(vi) Transcendental Meditation.

(vii) Reward and Reinforcement.

(viii) Instructions to the respondents on the tests, at the time of testing, and the testing conditions.

Utilizing some of these procedures, a few experiments have been carried out by the Indian researchers to test the possibility of training in creative thinking in the Indian context. These studies tried the effect of different procedures on the development of creativity, such as, competition (Raina and Chaturvedi, 1968, 1970), brain storming and related procedures, (Raina, 1970 and Chatterjee and Mitra, 1976), training in creative perception, creative appreciation, creative problem solving and divergent thinking (Nirpharake, 1977); brainstorming and morphological analysis (Pillay, 1978); discovery method of teaching (Prasad, 1979); brainstorming and role playing (Deshmukh, 1980); transcendental meditation (Sansanwal, Sathe and Jarial 1980, and Department of Educational psychology and foundations of education, NCERT, 1980); and Self designed instructional materials programmes (Bhaskara, 1981 and Jarial, 1981).

Although the critical evaluation of these experiments has been done somewhere else (Passi and Jarial), yet, most of these studies showed the possibility of development in creativity through deliberatey organized procedures. □

UNIVERSITY OF POONA

GANESHKHIND, PUNE-7

Applications in the prescribed form are invited for the following posts **on or before 31st December, 1981.**

1. Two Readers in Mathematics
2. One Lecturer in Physical Chemistry

} Temporary posts.

GENERAL QUALIFICATIONS

1. **Reader** : Must possess fairly long experience of teaching of Post-Graduate Classes and guiding research in the respective subjects.
2. **Lecturer** : (i) Must have a Doctor's Degree or published work of an equally high standard.

   and

   (ii) Consistently good academic record with First or High Second Class (B+) at Master's Degree in a relevant subject or an equivalent Degree of a foreign University.

If in the opinion of the Selection Committee, the Research work of a candidate as evident either from his thesis or from his published work is of a very high standard, it may relax any of the prescribed qualifications mentioned above.

MINIMUM QUALIFICATIONS

1. **Reader** : As prescribed by the University for recognition as
   & Post-Graduate Teacher (By papers).
2. **Lecturer**
   Post-Graduate Teachers (Papers) :
   The qualifications shall ordinarily be as follows :—

Viz : either those under I (i) and (ii) or those under II.

I (i) (a) A First or Second Class Master's Degree or a Master's Degree by Research;

or

(b) A First or Second Class Bachelor's Degree, with a Master's Degree in a subject in which the same is not awarded with Classes;

or

(c) A Doctor's Degree with at least a Second Class Bachelor's Degree;

or

(d) Any other equivalent Degree or Degrees of an Indian or a Foreign University;

and

(ii) (a) Five years experience of teaching Post-Intermediate Classes;

(b) Some published independent Research work.

II. A Doctor's Degree with a Second Class Master's Degree or the Master's Degree by Research in the subject.

1. **Readers in Mathematics**

(A) Qualifications desirable for one post :
Specialization in one or more of the following branches of Mathematics :

1. Homological Algebra,
2. Analysis,
3. Functional Analysis,
4. Topology,
5. Relativity and Cosmology,
6. Quantum Mechanics,
7. Ballistics,
8. Astrophysics,
9. Bio-Mathematics,
10. Finite Mathematics,
11. Control Theory.

(B) Qualification desirable for the other post :
Specialization in any branch of Pure Mathematics.

2. **Lecturer in Physical Chemistry**

Essential Qualifications

M. Sc. with first class or higher second class Master's degree in Physical Chemistry or equivalent degree of foreign University.

Desirable Qualifications

Doctorate degree/published work of high level.

Specialization : Molecular structure, Chemical Kinetics/Solid State Chemistry.

Scale of Pay

Reader : Rs. 1200-50-1300-60-1900.
Lecturer : Rs. 700-40-1100-50-1600
plus allowances admissible under University rules.

Age Limit

Readers below the age of 45 years and Lecturers below 35 years.

The prescribed form will be available on request with (1) a self addressed envelope (23 cm x 10 cm) bearing postal stamps worth **Rs. 1 25 and (2) Rs 10**/- in cash or by a Postal Order down in the name of the Registrar, separately, for each post.

(a) Conditions relaxable/higher starting salary admissible in exceptionally capable candidates.

(b) In the case of Lecturer, other things being equal preference will be given to candidates belonging to Scheduled Castes (including Scheduled Castes converts to Buddhism) and Scheduled Tribes.

S.P. Bhosale
REGISTRAR

UNIVERSITY OF CALCUTTA

CALCUTTA-73

Applications are invited for the whole time posts of Professor in the following departments in the grade of Rs. 1500-60-1800-100-2000-125/2-2500/- plus admissible allowances. Higher initial salary within the grade may be given to an exceptionally qualified candidate :

(1) Department of Modern Indian Languages (Tamil) one post—Bharati Professor in Tamil.
(2) Department of Applied Mathematics—two posts, one S.N. Bose Professor of Theoretical Physics with specialization in Theoretical Physics and the other open.
(3) Department of Archaeology—one post.
(4) Department of Zoology—one post with specialization in Entomology.
(5) Department of Botany—one Professor with specialization in Cytogenetics for the Centre of Advanced Study (Cell and Chromosome Research).
(6) Department of Commerce—IFCI Professor in Industrial Finance.

Essential Qualifications : (a) A First Class or High Second Class Master's degree or an equivalent qualification of a foreign University in the relevant subject; (b) Doctorate degree or with published work of high quality in journals of repute; (c) About 10 years' experience of teaching in Post-graduate classes and/or research and (d) experience of guiding research at Doctoral level. The candidate should be an outstanding scholar with established reputation who has made significant contribution to knowledge in the discipline concerned.

Note : For post No. 3 experience in Field Archaeology (exploration and excavation) is necessary. For No. 6 the Professorship has been created under the auspices of Industrial Finance Corporation of India to promote research as well as academic work in the field of Industrial Finance and is subject to the terms and conditions of the scheme in addition to the normal terms and conditions of service of University Professors. The Professor would be required to guide Ph.D. Scholars, to conduct seminars and to advance knowledge in his field of specialization through published research studies and other publications. The Professor shall deliver an annual public lecture at the University on the subject of his specialization. The lecture will be published by the University. In addition the Professor will assist the University Faculty in conducting regular courses in the field of Industrial Finance in the University. The Professorship has been created for a period of ten years for the present and may be continued further. The appointment will be made initially for a period of not exceeding five years and is renewable for further periods. Persons who have applied for the post in response to our previous advertisement need not apply again.

The selected candidates will be placed on probation for one year which may be waived in exceptional cases. The appointment shall be subject to the rules laid down or to be laid down for the teachers from time to time.

Applications (Seven Copies) prescribed form, (obtainable from the University Sales Counter on payment of **Rs. 5**/- or in case by post on sending a self-addressed 75 paise stamped envelope of 27 cms x 13 cms size with crossed I.P.O. of **Rs. 5**/- value in the name of Calcutta University) should reach the undersigned not later than **31st December, 1981.**

The choice of the Selection Committee may not necessarily be confined to those who apply.

P.K. Mukerjee
REGISTRAR

BIRSA AGRICULTURAL UNIVERSITY
RANCHI
Advertisement No. 5/81

Applications are invited for the following posts so as to reach the undersigned along with Postal Order for **Rs 10/- by 22.1.1982 (4.2.1982** for candidates abroad).

1. **Univ. Prof. level posts (Rs. 1500-2500).**
   - A. Faculty of Agri.—Dryland Agriculture—1*
   - B. Faculty of Vety. Sci. & A H.—i) Anim. Breeding & Genetics—1, ii) Animi Production—1, iii) Vety. Pathology—1 iv) Vety. Physiology—1 (Lien Vacancy).

   Quals.: Doct. with 10 yrs exp of teach and/or res in the discipline. Exp relax for cands having exceptly brilliant acad rec (ii) Professional deg/dip essential (iii) Good res exp as evidence by published papers desirable.

   N.B. For Dryland Agri. Doct. in Agronomy/Agril. Eng./Soil Sci. eligible.
   For Anim. Prod.-Doct in livest. Prod./Anim. Breeding/Anim. Nutrition/Vety. Physiol. eligible.

2. **Assoc. Prof. level posts (Rs. 1200-1900).**
   - A. Fac. of Agri.-(i) Agronomy—3* (1 lien vacancy) (ii) Soil Sci./Agri. Chemistry—1 (iii) Soil Microbiology—1 (iv) Soil Physics—1* (v) Soil Chemistry—1* (vi) Crop Physiology—1 (vii) Cytogenetics—1 (viii) Virology—1 (ix) Horticulture—1.
   - B. Fac. of Vet. Sci. & A.H. (i) Anim. Breeding & Genetics—1 (ii) Anim. Nutrition—1 (iii) Vety. Physiology—1 (iv) Vety. Medicine—1 (v) Vety. Surgery—1 (vi) Vety. Gynaecology—1 (vii) VPH & Epid.—1 (viii) Biology—1 (lien vacancy) (ix) Vety. Pharmacology—2 (1 lien vacancy) (x) Statistics—1.

   Quals. Doct. with 7 yrs exp of teach and/or res in the discipline. Exp relax for cands having exceptly brilliant acad rec (ii) Professional deg/dip essential for Vety. & Agri. posts.

   N.B. For Horticulture specialisation in Vegetable. For Biol.—Doct in Biochemistry/Parasitology. For VPH & Epid.—Master's in VPH & Epid. followed by Doct in VPH or in Parasit./Microb. with thesis in Zoonosis or Food Hygiene.

   (xi) Dy. Dir. Vety. Res.—1, **Quals.** Doct in any branch of Vety. Sci. & A.H. with 7 yrs exp of teach and/or res. Exp relax for cands having exceptly brilliant acad rec.

3. **Asstt. Prof. level posts (Rs. 700-1600).**
   - A. Fac. of Agri.-(i) Agronomy—21* (ii) Plant Breeding & Genetics—21* (iii) Soil Sci.—7* (iv) Agril. Eng—4 (v) Horticulture—2 (vi) Plant Pathology—7* (vii) Entomology—7* (viii) Agri. Ext. Edn—2* (ix) Meteorology & Statistics—4*.
   - B. Fac. of Vety. Sci. & A.H. (i) Animal Nutrition—3 (ii) Vety. Anatomy—1 (iii) Vety. Pathology—1 (iv) Vety. Biochemistry—1 (v) VPH & Epid—2 (vi) Anim Husb. Ext. Edn—1 (vii) Agrostology—1 (viii) Zoology (Pisciculture)—1 (ix) Anim Reproduction—1* (x) Animal Management—1* (xi) Anim. Breeding & Genetics—1* (xii) Parasitology/Pathology—1* (xiii) Statistics—1*.
   - C. **Programme Officer (Lab to Land Programme)—1**

   Quals. High II Class Master's deg with 2 yrs exp of teach and/or res in the discipline. Exp relax for cands having exceptly brilliant acad rec (ii) Professional deg/dip essential to Vet. & Agri. Post.

   N.B. For Meteorology-Master's in Physics/Statistics with exp in meteorological work.
   For Zoology-Master's in Zoology with specialisation in pisciculture.
   For Animal Reproduction—Master's in Gynaecology. For Anim. Management—Master's in Breeding / Nutrition/Livest. Prod./Physical with exp of Farm Management. For Parasit./Path. Master's in Parasit/Path. with specialisation in Parasitic Pathology.
   For Progm. Officer—Master's in Ext. Edn.

* Includes ICAR Scheme posts.

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Candidates from abroad may apply on plain paper and send their application with International Postal Orders covering the **application fee in favour of the Comptroller, BAU, Ranchi-834006.**

Abbreviations acad-Academic; cands—Candidates; deg-degree; dip-diploma; Dir-Director; Doct.-Doctorate degree; Edn-Education Exp.-Experience; Ext-Extension; exceptly-exceptionally; Quals-Qualifications; rec-record; relax-relaxable; res-research; **teach-teaching; VPH & Epid-Vety. Public Health & Epidemiology.**

Dr. B.N. Sahai
O/C Recruitment Cell

TAMIL UNIVERSITY
THANJAVUR
Notification

Applications in the prescribed form in quadruplicate are invited for the following posts in the University:

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2. **Deputy Registrar.**

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- (b) Published work of a high quality and active involvement in information Science and Library management.
- (c) Either five years of experience as an Associate Professor (Reader) or equivalent Post or ten years of experience in the management of research wing of a library.

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S. Ramachandran
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